

**THE NEXUS BETWEEN INSTITUTIONAL FACTORS AND DEVELOPMENT  
OF EMPLOYABILITY SKILLS OF TECHNICAL TRAINING INSTITUTIONS  
GRADUATES IN MERU COUNTY, KENYA**

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**A Thesis Submitted to the School of Education and Social Sciences in Partial  
Fulfilment of the Requirements for the Conferment of the Degree of Doctor of  
Philosophy in Leadership and Education Management of  
Kenya Methodist University**

**September 2024**

## DECLARATION AND RECOMMENDATION

### Declaration

This thesis is my original work and has not been presented for the award of a degree or any other award in any other University.

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### Recommendation

We confirm that the candidate carried out the work reported in this thesis under our supervision.

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## **DEDICATION**

I dedicate this work to my Resilient Mother Harriet Nkatha, Father Benson Mutembei and my children; Linah Gatwiri, Favor Nkatha and John Mark Mwenda for their unswerving love and support during this study.

## ACKNOWLEDGEMENT

I acknowledge the Hand of the Almighty God in my work, from the first concept to fulfillment of this academic journey. This journey hasn't been smooth but with Him, all things have been made possible. I am also indebted to my Mum, Harriet Nkatha and children; Gatwiri, Nkatha and Mwenda for their understanding, encouragement and understanding throughout my study.

I am grateful to Kenya Methodist University, School of Education and Social Sciences for giving me the opportunity to quench my academic thirst in this specialization. I would like to express my deep appreciation to the Dean Dr. Johnson Ikiugu and my esteemed PhD supervisors, Dr. Tarsilla Kibaara and Prof. Paul Maku Gichohi for their exceptional guidance, unwavering support, and invaluable insights throughout my doctoral journey. Your expertise and mentorship have been instrumental in shaping the success of my research. Special appreciation also goes to Dr. Flora Mutwiri and Dr. Kanyi who were the readers of the document and played a big role of perfecting my research work.

I am thankful to the County TVET Director and TVET principals in Meru County for the support that I got from them during data collection. I further acknowledge the trainees, trainers and the graduates for accepting to participate in my study by filling the questionnaires and the HoDs, Principals and Key Informants for participating in the interview guides.

Special thanks to my spiritual authority Dr. Wilfred Lai and Mama Rita Lai and my pastor Bishop Dr. Paul Wanjohi for prayers and continuous encouragement throughout the academic journey especially when I encountered burnout during data analysis.

Finally, I thank my boss H.E Mwalimu Mutahi Kahiga EGH and my workmates at the Nyeri County Government especially Benjamin Gachichio, Paul Wambugu, Bernard Kariuki, Solomon Chengecha, Naomi Mathenge, Mary Nyawira, Patrick Migwi and Patrick Mukiri for their words of encouragement and support. To everyone who supported me, may the good LORD reward you beyond measure.

## ABSTRACT

Technical and Vocational Education and Training (TVET) education is crucial for developing skilled workers and preparing them for employment. However, while Kenya's government has invested significantly in TVETs through legislation like the TVET Act and Kenya National Qualifications Framework Act to equip youth with the necessary skills, competences, and attitudes, challenges persist, with a few of TVET graduates finding employment. The research analyzed the nexus between institutional factors and development of employability skills of TVETs graduates in Meru County with a view to increase graduate employability. The study focused on how trainer characteristics, teaching-learning resources, training curriculum, and industrial engagement influence the development of employability skills, with personal attributes playing a moderating role. This research was guided by the theories of employability proposed by Knight and Yorke, as well as the Human Capital Theory. Two departments, Business Management and Building & Civil Engineering, which were prevalent across the six TVET institutions, were purposely selected. The study was based on a pragmatism philosophy, employed a mixed research design, and used a convergent parallel design of cross-sectional survey. The target population consisted of 841 trainees, 93 trainers, 475 graduates, 12 (heads of department) HoDs, 6 principals, and 6 key informants from the industry. The sample size included 6 TVET institutions, 142 trainees, 12 trainers, 72 graduates, 12 HoDs, 6 principals, and key informants, with saturation reached at 5. Census sampling was used for TVET institutions, principals, and HoDs; simple random sampling for trainers; and stratified sampling for trainees and graduates. Questionnaires were given to trainers, trainees, and graduates, while interview guides were used for principals, HoDs, and key informants. A preliminary study confirmed the instruments' reliability and validity, with a Cronbach's coefficient above 0.7. Data analysis utilized SPSS Version 29 for numerical data, involving percentages, means, and standard deviations. Correlation and regression analyses tested hypotheses. Quantitative data were presented in tables and figures, while qualitative data from open-ended questionnaires and interviews underwent thematic analysis. Ethical guidelines were strictly followed, achieving 89.30% response rate. Findings revealed that institutional factors significantly influenced employability skills development. Industrial engagement had the strongest impact, while teaching-learning resources were moderately affected by outdated curricula and limited stakeholder involvement. The study concluded that inadequate resources, outdated curricula, lack of industry engagement, and personal attributes all hindered employability skills development. Recommendations included prioritizing industrial engagements through collaborations and partnerships, providing adequate modern teaching-learning resources, integrating personal attributes into TVET programs, using modern teaching-learning resources aligned with labor market needs, and frequently reviewing curricula with stakeholder involvement. Further studies on implementing a dual vocational system in Kenya were recommended to improve the cultivation of skills that make individuals employable.

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## **ABBREVIATIONS**

<b>CBT</b>	Competence Based Training
<b>CBET</b>	Competence Based Education and Training
<b>CIDP</b>	County Integrated Development Plan
<b>GOK</b>	Government of Kenya
<b>HoD</b>	Head of Department
<b>KNEC</b>	Kenya National Examination Council
<b>KNQA</b>	Kenya National Qualifications Authority
<b>KNQF</b>	Kenya National Qualification
<b>KNSB</b>	Kenya National Bureau of Statistics
<b>KTTC</b>	Kenya Technical Teachers Training College
<b>KUCCPS</b>	Kenya Colleges and Universities Central Placement Services
<b>ICT</b>	Information and communications technology
<b>ILO</b>	International Labor Organization
<b>MoE</b>	Ministry of Education
<b>NACOSTI</b>	National Council for Science Technology and Innovation
<b>NCA</b>	National Construction Authority
<b>OECD</b>	Organization for Economic Co-operation and Development
<b>SCANS</b>	Secretary's Commission on Achieving Necessary Skills

<b>SDG</b>	Sustainable Development Goals
<b>SPSS</b>	Statistical Packages for Social Sciences
<b>SSA</b>	Sub-Saharan Africa
<b>TTIs</b>	Technical Training Institutes
<b>TVE</b>	Technical Vocational Education
<b>TVIs</b>	Technical and Vocational Institutions
<b>TVET</b>	Technical Vocational Education and Training
<b>TVETA</b>	Technical Vocational Education and Training Authority
<b>UNESCO</b>	United Nations Education Science and Cultural Organization
<b>UNEVOC</b>	United Nations Education and Vocation
<b>VETI</b>	Vocational Education and Training Institutions

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background to the Study**

The need to address skills that would enable graduates of TVET to get employment in Meru County was the motivation behind this study. Unemployment especially of the youth is a major concern globally. Vocational education plays a critical role in lowering unemployment rates of a country as it prepares quality and qualified work force with high employability skills that meet industry needs (Latif, 2022; Muriuki & Dominic, 2022). TVET is seen as the solution to economic and financial freedom, unemployment of the youth, reduction of anti-social activities, acquisition of skills, lifelong learning as well as a contributor to sustainable development (Ngure, 2022). Muriuki and Dominic (2022) assert that TVET institutions have a higher influence than any other academic institution because they are the only institution that can adequately train the workforce for the workforce of the future and for a fair life, as well as the master key to unlocking unrealized potentials worldwide.

Employability encompasses the personal attributes of graduates that enable them to succeed and prosper in their chosen professions, contributing to the workforce, community, and economy (Mabunda & Frick, 2020). Additionally, employability involves recognizing, acquiring, adapting, and continually enhancing skills, knowledge, and personal attributes that improve graduates' chances of finding and creating meaningful employment, which benefits themselves, the workforce, society, and the economy, as noted by Yorke and cited by Oliver (Yorke, 2011; Oliver, 2015). Yorke (2006) defined employability as the ability



to secure and maintain meaningful employment, emphasizing the importance of skills, knowledge, and personal qualities essential for preparing graduates to obtain employment or succeed in their chosen careers.

According to Kenayathulla (2021), employability refers to the capacity to secure and sustain meaningful employment. In this research, employability is described as the capability to secure and retain employment, which is the primary objective for graduates following their education from TVET institutes (Aloysius et al., 2018). Graduates entering the job market today are faced with several challenges including; decreased employment opportunities, rapid technological changes, changes in the fields of knowledge and specialization as well as life-long learning. The industry mostly is flooded with graduates whose skills don't match those of the industry (ACET,2023). Notably, this can be enhanced by TVET institutions focusing on institutional factors. In this study, Institutional factors are all aspects within the institutions that influence or determine acquisition of employable such as qualified trainers, modern teaching-learning resources, curriculum that is relevant to the industry and deliberate partnerships with the industry. These institutional factors are key in development of graduates' employability skills.

Trainers are the major stakeholders in delivering TVET who are tasked with delivering key skills to trainees and quality work force as development of employability skills falls upon them (Muriuki & Dominic, 2022). Effective TVET training necessitates the institutions to have adequate modern teaching-learning resources for trainees to be well prepared for the labor market (Nathaniel, 2020; Muriuki & Dominic, 2022). A training curriculum that is relevant to the labor market produces an employable graduate (Muchira, et al. 2023; Republic of Kenya, 2022). Close ties between TVET institutions and the labor market to

reduce employability skill gap are needed in the market economy that is becoming more industrialized (Meta, 2022).

Even if there are noticeable efforts by the government of Kenya to enhance growth of SME's, encourage vocational education and youth support funds, youth's unemployment still persists (Ndile, 2018). There is a social problem of unemployment, not only among the youths but also TVET graduates. Ali et al. (2017) contends that this unemployment can be attributed to skills development and mismatch within the industry-labor market requirements. According to the Kenyan employers; the skills mismatch problem is due to lack of soft skills in potential employees, personal attributes and insufficient technical skills (CAP-YEI, 2017; Awiti et al., 2019). The key component of employability includes; being able to solve problems, ability to communicate effectively, interpersonal-teamwork ability and decision making. Further, emotional intelligence, quick learning ability, innovation, computational skills and analytical skills among others are considered very critical by most employers. The relationship between institutional factors and the cultivation of employable skills among graduates of TVETs will be examined to see if graduates personal attributes have any impact on this connection.

Globally, technical knowledge and employability skills are required in competing for employment and job sustenance in the industrial market (Ismail, 2018). According to World Employment Social Outlook (2018), lack of youth employment is a major crisis globally and youth under 25 years are likely to be unemployed. Out of 1.3 billion youths of age 15 to 24 globally, 41% have secured a job (International Labor Organization [ILO], (2020). Worldwide the industry leaders developed the Sustainable Development Goals

(SDG's) which among them is youth employment as well as decent remuneration for skilled workers (Guàrdia et al., 2021).

In Europe, globalization and changes in technology have led to creation of policies that encourage curriculum development focusing on occupations which the trainees will end up working. Thus, TVET training combines industry and class training to ensure the candidate remains relevant to the industry. This has made the continent become very competitive due to production of high skilled capital labor (Cacciolatti et al., 2017). The Dual System in vocational education, where school-based learning is integrated with work-based learning established in Germany has been lauded worldwide as it produces well trained workers who are recognized internationally (Kenayathulla, 2021). Kenayathulla et al. (2019) notes the Europe produces high skilled graduates with competent skills for the world of work with key determinants of employability being technological knowledge and numeracy skills. A study by CompTIA showed that over 15 million businesses are looking for IT staff with high level skills yet and this possibility has been enabled by updated curriculum and continuous partnerships between the market stakeholders, government and the educators (Patacsil & Tablatin, 2017). There is a divergence on the school educational curriculum and the industrial needs with special reference to soft skills that include personal attributes. Grero (2019) observed the need to improve TVET education with suitable structural, operational and policy changes for better acquisition of critical skills such as technical, soft and personal traits and attributes for easier access to jobs.

In Asia employability of graduate's preparedness to the world of work is highly recommended for economic development and therefore prioritized by the continent (Tomlinson, 2017). According to Barasa and Kwasira (2019), in 2012 during the UNESCO

third International Congress on TVET in Shanghai, TVET started gaining popularity globally as driver to solving unemployment. Skill development has been emphasized for young professionals to enhance development. Nusrat and Sultana (2019) in their article coins that 80% of training is done in industries and only 20% of training takes place at school; as a result, trainees are equipped with right skills required by the industry. Therefore, hand on skills gained in the industry makes the graduates more employable (Nusrat & Sultana, 2019).

Singapore's education landscape has a comprehensive Skills Future Initiative which emphasizes on skill acquisition more than academic qualifications (Mardiana, 2020). The Singapore National Manpower Council has developed policies that ensure training meets the relevant demands of the industry. The policies and initiatives of Asian TVET system are in line with the needs of the industry. Huang et al. (2022) opines that governments have made intentional efforts to achieve graduate employability through structural adjustment and improving education policies.

These adjustments include employment of very highly qualified trainers and the continuous professional development of trainers. This focus of employment is creating both economic and social development (Qiwang & Xiaorui, 2020) has led to 86.4% of fresh TVET graduates being employed both full time and part time according to Singapore Yearbook of Manpower 2018 (MOM, 2018).

Ali et al. (2017) in their study examined effects of integrating soft skills which includes personal attributes in the curriculum found out that ability to solve a problem, soft-skills, communication skills and competencies in project management, leadership, decision

making and critical thinking were highly emphasized in Asia. Buzdar et al. (2018) also revealed that there was a mismatch of graduates' attributes with those acquired and the job attributes required. For instance, Malaysia has managed to address the issue of employability through vocational educational programs by skilling up the skills of its employees achieving over 3 million high skilled workers (Danial et al., 2014). The high industrialization in Asia can be explained by development of its human resources. Therefore; skills, knowledge and attitude play a great role in preparing TVET graduates for employability as they enter the labor force (Nugraha et al., 2020). This is not possible without the right infrastructure; thus Asia has made great strides in developing the infrastructural capacity of its TVET institutions to match with the industry environment (Tentama & Merdiaty, 2020).

Africa being a youthful continent account for almost 20% of the world youth population with majority them being unemployed (Mtebe et al., 2020). In Africa, youth unemployment is becoming a serious problem; and on paper, in 2021 the rate was at 10.6% (ILO, 2021). In the continent, only 3 million formal jobs are created annually with majority of them working in the informal sector though youths between 10 million to 12 million enter the workforce each year (African Development bank reports, 2016). Unemployment in Africa rose from 18 million in 2010 to over 26 million by 2020, affecting more than 89.2% of the workforce in Sub-Saharan Africa (SSA). The International Labor Organization (ILO) projects that Africa's youth population will increase to 105 million by 2030, with 94 million residing in Sub-Saharan Africa (Africa Development Bank [AfDB], 2019; ILO, 2017). Youth skill development investment is a priority under the fourth Sustainable Development Goal (SDG), which focuses on inclusive and equitable quality education (ILO, 2020).

Aligning with these goals, TVET provides youth and adults with skills to enhance job access and creation through innovation and problem-solving (Organization for Economic Co-operation and Development [OECD], 2016; Khirotdin et al., 2019).

Most researchers including Ayonmike (2014), Chigbu and Nekhwevha (2022), Mabunda and Frick (2020) and Ochieng and Ngware (2021) assert that a significant contributing factor to youth unemployment is the mismatch between graduates' abilities and industry requirements. Skill development in the SSA region therefore becomes very critical in enhancing employability (Evans & Santos, 2019; Guàrdia et al., 2021). In South Africa strategic issues that have been put into place to address employability are institutionalizing the National Qualifications Programme with the aim of building capacity and skills to meet skills demand caused by skilled workforce moving to developed countries. The pedagogical skills of the trainers, internship opportunity, workshops and seminars were found very essential in enhancing graduate employability and skills development in Africa (Mesuwini et al., 2020). Lack of right policies, infrastructure, educational interactions and learning methods have been blamed for poor graduate skill in Africa.

In West Africa, Ayonmike (2014) contend that lack of required learning resources in vocational institute in Africa was the reason why graduate lack adequate skills required in the workplace. World Bank has supported Technical and Vocational Education (TVE) in Africa since 1963. However, Technical and Vocational Education (TVE) has been neglected and regarded as inferior form of education compared to university education in Africa. It is regarded as education for those who failed in their high school education (Olojuolawe et al., 2019). This perception, lack of adequate facilities and inappropriate curriculum has hindered development of appropriate industrial skills (Ayonmike, 2014;

Chigbu & Nekhwevha, 2022). Employability problems were linked by Okolie et al. (2020) to inadequate learning environments, a shortage of personnel with relevant industry expertise, and inappropriate pedagogical approaches (teaching theoretical content). In Ghana, Boahin (2018) notes that over 48% of the youths aged between 15-34 years have no employment and only 10% of youths who attend youth service are employed. They are missing essential job-ready skills such as problem-solving, time management, ICT, teamwork, and a desire to learn.

The Ghanaian government has taken measures such as skills training and internship modules yet this has not achieved great results. Further, Kamuhabwa (2019) study indicated that graduates lack employability skills due to lack of qualified trainers, lack of adequate resources and poor remuneration of trainers. Additionally, over 70% of the industry players seek for other skills such as communication, positive attitude, self-confidence, commitment, reliability, leadership ability, problem solving, and teamwork skills among others which most candidates lack. These challenges have been surged by use of old curriculums which lack updates with the ever-changing industry needs (Kintu et al., 2019).

In Kenya, according to Kenya Population Census (2019), the unemployment rate is at 22.2% with over twenty percent population - nine point five million being young people (Gachugu & Mattingly, 2019). Statistics in Kenya show that unemployment rate of youths aged 13-35 years who are eligible to work and the most productive labor in the country stands at 13.84% among the highest in the world (World Bank, 2021). Out of five youths three are unemployed (United Nations Education Science and Cultural Organization

Youth unemployment in Kenya was 13.84% in 2021 (World Bank, 2021). The 2019 Kenya Housing and Population Census reported that 36.1% of the population is youth, with 13% of them unemployed (KHPC, 2019). The primary cause of youth unemployment is attributed to a lack of vocational skills, often due to school dropout or non-enrollment in TVET institutions (Republic of Kenya, 2022; UNESCO, 2016; Moses & Olika, 2019). The KNSB household survey of 2015/2016 which was released in 2017 recorded the rate of unemployment to be at 7.4% in the country; those below 35 years standing at 85% with 19.2% of them being aged between 20 years and 24 years.

In Meru County, according to Meru County Integrated Development Plan 2018-2022, the rate of unemployment in Meru matches that of the country (Meru County Government, 2018). Meru County total labor force stood at 55.9% of the population with only 10% of the households being wage employed and another 10% being self-employed (Meru County Government, 2018).

Most trainers in TVETS are directly recruited from Kenya Technical Training College (KTTC) and local universities; are employed before acquiring sufficient technical and industrial experiences with insufficient practical exposure in related industries where they are expected to train (Muriuki & Dominic, 2022). Majority of the trainers lack pedagogical capacity leading to inappropriate teaching and instructional methods (Akala & Changilwa, 2018). The Competence Based Education and Training (CBET) framework mandate is to improve the curriculum that offers hands on skills training relevant to the labor market and competitive workforce (KNA, 2021). Despite this, TVET curriculum is still criticized for not addressing the market needs; and failure to align with industrial changes and employers lament of skill gap when recruiting TVET graduates due to mismatch between acquired



skills and employer expectations (Koror, 2017; Gachugu & Mattingly, 2019; Yamada & Otchia, 2020). The survey by Muriuki and Dominic (2022) showed that graduate at internship and early years of career lack skills that the employers look for. There is minimal industry collaboration with TVET institutions yet CBET policy framework extends corporations between the two to purposively improve the employability skills of the graduates (Republic of Kenya 2018). According to Muriuki and Dominic (2022), TVET institutions should maintain a link with the industries failure to which graduates would continue to struggle fitting into the labor market. TVETs can borrow from the already working European models like the German Dual Model system and modify it into their context (German Development Co-operation in Kenya, 2017). Most TVET institutions have inadequate training facilities and machinery, poorly equipped workshop and libraries, dilapidated classrooms and lack industrial work experience schemes (Ngware et al., 2023; GDC Kenya, 2017). Anindo et al. (2016) suggested that the lack and insufficiency of up-to-date infrastructural resources and training equipment negatively affect trainees' acquisition of employability skills needed for the job market. Similarly, Baituti (2014) found that the absence of physical resources in youth VET programs adversely impacts the trainees' development of employable skills. A challenge in funding TVET institute since government resources are scarce was also noted. Maingi (2019) noted poor training facilities and remuneration of trainers and inadequate tools and equipment for learner and industry centered methods of training.

Throughout Meru County, six technical training institutes have been established. The include Nkabune Technical Training Institute, Kirua Technical Institute, Karumo Technical Training Institute, Mukiiria Technical Training Institute, and Meru National

Polytechnic. High levels of unemployment among the graduates have motivated the researcher to carry out a research on the nexus between institutional factors (trainer characteristics, teaching-learning resources, curriculum and industrial involvement) and development of employability skills of TVET graduates, moderated by personal attributes in Meru County with a view of increasing graduate employability.

## **1.2 Statement of the Problem**

For any nation to attain sustainable economic development, it should equip youth with requisite skills, competences and attitudes. TVET education aims at developing skilled workers for a nation; preparing the youth for employment by empowering them with employable skills that are responsive to the labor market in an ever changing technological and economic environment (UNESCO, 2021; United Nations Education and Vocation [UNEVOC], 2017; Oviawe et al., 2017). The 21st century's economy is skill intensive (World Bank, 2018), thus, anybody lacking the demanded high standard employable skills cannot find employment (Nason, 2019; Mesuwini et al., 2020; Yamada & Otchia, 2020; ILO, 2020a; Mansour, 2021; Muriuki & Dominic, 2022). The rising trend of educated individuals facing unemployment highlights a growing gap between education and the job market, influenced by a country's education and training system and the rapid advancement of technology (Muriuki & Dominic, 2022). As a result, TVET institutions are essential for promoting economic growth and reducing unemployment, aligning with the 2030 Agenda for Sustainable Development. SDG 4 underscores the importance of TVET in providing students with the necessary knowledge, skills, and competencies for both employment and entrepreneurship (UNESCO, 2021).

The government has recently invested significantly in TVETs to promote industrialization and development (Republic of Kenya, 2018). These investments are supported by the TVET Act of 2013, which aims to strengthen technical and vocational education in Kenya (Kahihu et al., 2021). Furthermore, measures such as the Kenya National Qualifications Framework (KNQF) Act of 2014 for quality assurance, the creation of Kenya Colleges, Competency-Based Education Training (CBET), and Universities Central Placement Services (KUCCPS), the provision of modern equipment to TVET institutions, increased budget allocations, and the establishment of the Technical and Vocational Education and Training Authority have been implemented (Nyamai, 2022). These initiatives aim to provide TVET trainees with the necessary knowledge, skills, and competencies to enhance their employability. Despite the above developments, the employability of TVET graduates in Kenya remains low at 60% Nyamai (2022) when compared to other nations like Germany, where, 90% of VET graduates are absorbed in the job market (German Development Co-operation in Kenya, 2017; CEDEFOP, 2018; Mtebe et al., 2020). Further, Kenya has been fighting high unemployment rates among the youths and skills gap in the labor industry (Ndile, 2018). Acquisition of TVET skills can solve most of the global challenges among the youth as their unemployment leads to political instability, national insecurity and decreased social cohesion (Afeti, 2017; Nathaniel, 2020; Muriuki & Dominic, 2022). About 500,000 graduates from Kenya enter the labour market annually, yet, only 25 per cent are absorbed (Nyamai, 2022). The training and education quality is usually attributed to institutional factors, learner-based factors, economic-based factors, personal attributes, nature of soft skills and technology-based factors (Baituti, 2014, Okolie et al., (2020). Graduate unemployment is equally affected by other factors such as

a nations political environment, changes in policies and practices, economic status especially when there are financial crises. Interrelationships between institutional factors and development of employability skills have not been verified empirically. The extent to which the constructs of this study affect employability of TVET graduates has not been adequately investigated. If the issues raised by this study are not addressed, the government of Kenya might continue losing returns on its valuable financial investment in TVET institutions, and negate the intention to produce productive human resources who would spur industrialization as stipulated in Vision 2030. This has potential to hinder economic growth and achievement of the country's development agenda. A number of studies have addressed the issue of infrastructure, competency based curriculum, trainer qualifications, for example, Ndile (2018), Muriuki & Dominic (2022) and Nathaniel (2020). However, these studies did not report relationships between these variables and graduate employability. Other studies were carried in universities and vocational high schools using either quantitative or qualitative design with few using mixed designs. There is lack of clarity on the issue of development of employable skills among TVET institutes in Kenya and especially Meru County which were addressed by this study.

### **1.3 Purpose of the Study**

The study analyzed the nexus between institutional factors and development of employability skills of TVETs graduates in Meru County with a view to establish how graduate employability can be increased.

### **1.4 Objectives of the Study**

- i. Examine how trainers' characteristics influence the development of employability skills of TVET graduates in Meru County. Establish the extent to which teaching-

learning resources influence the development of employability skills of TVET graduates in Meru County.

- ii. Analyze how training curriculum influence the development of employability skills of TVET graduates in Meru County.
- iii. Determine whether industrial engagement influence the development of employability skills of TVET graduates in Meru County.
- iv. Establish whether personal attributes moderate the relationship between institutional factors and the development of employability skills of TVET graduates in Meru County.

### **1.5 Hypothesis of the Study**

**HO<sub>1</sub>** Trainers' characteristics do not statistically influence the development of employability skills of TVET graduates in Meru County.

**HO<sub>2</sub>** Teaching-learning resources do not statistically influence the development of employability skills of TVET graduates in Meru County.

**HO<sub>3</sub>** Industrial engagement does not statistically influence the development of employability skills of TVET graduates in Meru County.

**HO<sub>4</sub>** Training curriculum does not statistically influence the development of employability skills of TVET graduates in Meru County.

**HO<sub>5</sub>** Personal attributes do not statistically moderate the relationship between institutional factors and the development of employability skills of TVET graduates in Meru County.

## **1.6 Research Questions**

The following research questions guided the process of analyzing the qualitative data.

- i. What trainers' characteristics influence development of employability skills of TVET graduates in Meru County?
- ii. To what extent do teaching-learning resources influence development of employability skills of TVET graduates in Meru County?
- iii. How does training curriculum influence development of employability skills of TVET graduates in Meru County?
- iv. To what extent does industrial engagement influence development of employability skills of TVET graduates in Meru County?
- v. What moderating effect do graduate personal attributes have on institutional factors and development of employability skills of TVET graduates in Meru County?

## **1.7 Significance the Study**

According to World Employment Social Outlook (2018), lack of youth employment is a major crisis globally and youth under 25 years are likely to be unemployed. Out of 1.3 billion youths of age 15 to 24 globally, only 41% have secured a job (ILO, 2020). Youth unemployment is becoming a serious problem; and on paper, in 2021 the rate was at 10.6% (ILO, 2021). Approximately 20% of the youth globally is from Africa and majority them are unemployed (Mtebe et al., 2020). In Kenya, statistics show that unemployment rate of youths aged 13-35 years who are eligible to work and the most productive labor in the country stands at 13.84% among the highest in the world (World Bank, 2021). Out of five youths three are unemployed (UNESCO, 2016; Moses & Olika, 2019). In Meru, according to Meru County Integrated Development Plan 2018-2022, the rate of unemployment in

Meru matches that of the Kenya (Meru County Government, 2018). The challenge of youth unemployment globally, regionally, nationally and locally creates social evils and slows economic growth. This study is likely to give insights on how to tackle youth unemployment in Meru and Kenya at large.

The findings contribute to extension of knowledge on curriculum development, delivery and improvement of the CBET approach. The findings add knowledge on trainer characteristics pedagogical requirement thus enhancing trainees' employable skills. The study benefits all the TVET stakeholders which include; the County and National Government, the employers/industry and the TVET institutions. The County and National Government stands to benefit in provision of relevant infrastructural requirements to enhance student development of employability skills. The industry stakeholder and the labor market may find the output of this study very essential as input to them to partner with TVET institutions to deliver quality education relevant to the labor market. The board of management as well as the principals may find the result of this study very significant in recruitment and selection process to attract qualified trainers thus enhancing graduate acquisition of employable attributes. This study is beneficial to graduates at all levels because they develop and improve their personal attributes which in a large extent determine who the employers consider for employment. This study adds to the body of knowledge by validating and developing the most essential skills for employability among the TVET graduates.

### **1.8 Assumptions of the Study**

The following assumption guided the conduct of this study: that during the data gathering process, respondents would provide accurate and sincere information. The information

gathering tools would make it possible to get accurate and trustworthy data regarding institutional characteristics and the growth of TVET graduates' employability skills in Meru County. That all the respondents were aware of the institutional factors, employability skills and the personal attributes required for enabling the graduates find or create employment.

### **1.9 Limitations of the Study**

These factors would be a challenge in this study affecting relevance of the conclusions. The respondents of this study would have a negative attitude towards the TVET institution. Some respondents would also give information that would misrepresent the current state of the institution and fail to point out the negative aspects for fear that the information would not be kept private and confidential. To overcome this, the researcher requested the respondents to be open-minded and to give as honest feedback as possible as well as assured the respondents of confidentiality and privacy of the data provided. The study was based on a large geographical area; Meru County which has both public and private technical institutes, vocational training centers and polytechnics thus requiring more time and funds in carrying out the study. To curb this, the study focused on public technical and vocational institutions leaving out the private technical institutions, vocational training centers and polytechnics. Development of employability skills of the TVET graduate can be affected by other factors such as government policies, socio-economic factors and technology. The data collected from participants will solely be utilized for academic purposes. Hence, the researcher emphasized the importance of honesty and sincerity among respondents.



### **1.10 Delimitations of the Study**

The research took place in Meru County, Kenya. According to the County Integrated Development Plan 2018–2022, Meru County's unemployment rate is similar to the national average, making the study's findings potentially relevant to other counties as well (Meru County Government, 2018). By 2018, the Technical Vocational Education and Training Authority (TVETA), accredited by the Kenya National Examination Council (KNEC) and the Higher Education Loans Board (HELB), had registered and licensed six public technical training and vocational institutes. The study focused on two departments: Business Management and Building & Civil Engineering, chosen because Business courses are less practical-oriented compared to Building & Civil Engineering.

The two departments also cut across the 6 institutions. The findings of the study are applicable to other departments as well that have not been studied within the institutions, other technical institutions and other counties that have TVETs in Kenya. There have been cases of buildings collapsing in Kenya among other reasons being poor workmanship, shortcuts and impunity thus Building & Civil Engineering department is being considered (National Construction Authority [NCA], 2022) The diploma programme among the six institutions was selected for the study. The trainees were diploma continuing students who were in their final year. These were believed to be fully prepared for the world of work as they had been in the institutions long enough and have acquired the necessary employable skills and competences through the theoretical and practical trainings. The graduates considered in this study were those who cleared their studies in 2021 and were the first cohort benefiting from government TVET initiatives that had graduated or were set to graduate. They were also believed to be employed.

### **1.11 Definition of Operational Terms**

The following terms will be utilized in this study.

**Employability:** The capability to secure and retain employment

**Employer:** A person or organization one works for and earns a salary for upkeep.

**Employability Skills:** A set of skills that increase the graduates' rate of employment if developed. (Guàrdia et al., 2021).

**Institutional factors:** All aspects within the institutions that influence or determine acquisition of employable skills that lead to employability.

**TVET Graduate:** A trainee who has successfully completed a course of training in a TVET institution.

**Skill:** an ability to carry out an assigned job competently

**Trainer characteristics:** Specific qualification, experience expertise that the trainer needs to possess in order to transfer knowledge and employable skills to the trainees.

**Teaching-Learning resources:** Equipment, tools, learning materials, information communication technology, and physical infrastructure in the institutions that enhance reading, learning and transfer of knowledge, and practical skills on trainees.

**Training Curriculum:** Refer to subject content, instructional methods employed, practical learning and generally courses effectiveness in producing an employable graduate.

**Industrial engagement:** Includes collaborations, partnerships with the industry and activities such as apprenticeship, internship and attachment that give trainees job

experience and help in transitioning to the world of work.

**Personal Attributes:** Individual qualities that complement technical and theoretical skills making one unique effective.

**Moderating Variable:** A variable that influences the connection between the independent variables and the dependent variable.

**Triangulation:** Use of multiple approaches to generate data in order to understand a phenomenon.

**Dual Vocation System:** A combination of training in two settings; the workplace and TVET institution.

**Convergence approach:** A mixed research paradigm, which integrates qualitative and quantitative research designs, enables data to be compared and contrasted enhancing comprehension of the phenomenon (Creswell, 2014).

**Saturation of Data:** No more new information is being generated.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter explores the current literature on the relationship between institutional factors and the development of employability skills among graduates of TVETs in Meru County. The literature review is systematic analysis of scholarly articles, theses, dissertations, print and electronic sources to establish studies regarding the study area. Kumar and Minz (2014) stated that literature review helps the researcher familiarize with present and past research in the study area. The chapter will further discuss the theories that inform and guide the research. Additionally, it will discuss the conceptual framework used to conduct the study. The literature review has been be organized thematically in accordance with the goals of this study, which include analyzing how trainer characteristics, learning resources, industrial engagement, curriculum, and personal attributes that influence the development of skills that prepare one for jobs for a TVET graduates in Meru County. The theory of human capital and the theories of Knight and Yorke were applied in guiding this study.

#### **2.2 Overview on Development of Technical and Vocational Education and Training**

TVET, as defined by UNESCO (2015), is an educational institution that offers formal, informal, and non-formal education and training to impart the knowledge and skills necessary for employment. Such education and training enable students to acquire practical skills relevant to their chosen career paths, equipping them for various roles as artisans, tradespeople, and technicians (Chikati et al., 2018). Vocational education gives chances that are essential for skill development as well as practical training that gets one ready for the workforce (Latif, 2022). Students have been trained for specialized jobs for thousands

of years. While young men received specialized trade training from professionals and their parents, young women learnt household skills from their mothers.

In the US, Career and Technical Education (CTE), which evolved from vocational education programs, prepares students with skills and post-secondary degrees for technical fields needed in the labor market. Vocational education arose in the early 20th century due to increasing industrialization, labor shortages, and an influx of immigrants and rural children into public schools. The Smith-Hughes Act of 1917 provided federal funding for these programs to train for professions not requiring university degrees, though vocational education was initially criticized as marginalizing the poor and immigrants. The Perkins Act of 1990 then redefined vocational education as organized programs for paid or unpaid employment aimed at improving U.S. competitiveness through funding for school/work-based learning partnerships. Studies found vocational graduates were more likely to get relevant jobs compared to university graduates. There has subsequently been a push to integrate academic and vocational education through "tech-prep" programs to make learning more meaningful, improve employability, and enhance curriculum content.

In Europe, TVET extends way back to the 12<sup>th</sup> Century and educational choices are influenced by historical underpinnings of the context an individual is found and has emerged in different forms in different countries referred to as labour cultures (Greinert, 2005). The three major labor cultures institute; the Britain Liberal Model, the France School Based or Bureaucratic model and the Germany Dualistic Model with others either combining or variation from them. In Europe, there is an institution established by the European Commission called CEDEFOP, which has been dealing with vocational

education and training (VET) systems in EU countries since its establishment in 1976. VET in Europe provides learners with skills that increase their employability.

The EU has a public policy promoting VET as a means for knowledge development, economic growth, sustainability, research, innovation, productivity and competitiveness. VET systems across Europe involve a well-developed network of stakeholders including employers, trade unions and other bodies. While VET approaches vary between countries, some nations like Denmark, Germany and Switzerland have seen over 80% of VET students participating in successful dual vocational training systems combining classroom and workplace learning. After the 2008 economic recession, countries with strong dual VET systems experienced lower youth unemployment as training companies tended to hire their apprentices. Studies show vocational training leads to lower unemployment risk compared to general education degrees. This underscores how prioritizing skill development through VET can increase employability rates, justifying the importance of vocational training initiatives.

In Asia, government policies have established vocational education and training (VET/TVET) systems as pathways to better employment opportunities and economic development contributors. However, TVET approaches vary across countries, though commonly aimed at enhancing employability and socioeconomic development. Since 1949, China has significantly improved TVET access, graduate employment rates, industry engagement, trainer qualifications, and ICT integration. Laws and national plans like the 2009 State Council report and 2010-2020 Outline for Education Reform were adopted to address TVET challenges such as trainer shortages and misaligned curricula.

China prioritizes industry and employer participation in the design of TVET curricula to promote lifelong learning and career advancement through work-based learning models. This strategy is demonstrated through initiatives such as the "One town, One product, One major" program in Guangdong Province, which promotes collaboration among large corporations, small and medium-sized enterprises (SMEs), and vocational institutes. As a result, over 90% of Chinese TVET graduates secure employment, aided by a strengthened TVET trainer workforce developed via increasing teacher dual-qualifications, recruiting from industry, and using ICT to improve quality. The institutional factors examined in this study - trainer qualifications, curricula, and industrial links - align with China's multi-stakeholder efforts to build employability skills through improved, industry-engaged TVET programs.

Prior to independence, VET in Africa was primarily informal apprenticeships within communities or under colonial rule. The formal development of VET began as countries gained independence, though approaches differ across Africa's diverse countries, cultures, and economic development levels. However, most African nations now recognize VET as essential for economic growth, unemployment reduction, and the acquisition of employable skills driving development. As a result, there has been a significant overhaul and reinforcement of TVET systems, aligning with the priorities outlined in Agenda 2030, Agenda 2063, and the Continental Education Strategy for Africa 2016-2025. These frameworks emphasize the importance of cultivating technical and vocational skills to facilitate employment opportunities, promote decent work, and encourage entrepreneurship. In spite of this, the African Union describes TVET in Africa as having outdated and damaged infrastructure, a lack of private sector participation in curriculum

development and delivery, unqualified trainers who lack real-world experience in the subjects they teach, and insufficient public-private partnerships and collaborations (UNESCO, 2016; Gessler & Holle, 2020).

In Tanzania, the growth and development of vocational training and education can be traced way back to 1892 when the first school was established by German colonial administration. Crafts such as carpentry, printing, book binding, tailoring, blacksmithery, masonry among others were taught so that the colonial government was fully supplied with low labor skilled workforce for its administration. In 1923, missionaries started private vocational training schools which focused more on practical than theories especially in carpentry, joinery, bricklaying and masonry. They used such skilled workforce to build churches, schools, hospitals and houses. Formal vocational training and education was introduced in 1950s by the British colonial government where they built Trade Schools which later became Technical Secondary Schools; that provided training for skilled manpower in industrial production, agriculture and construction (Mukutika, 1975). The graduates' activities transformed the society as they received technical skills and knowledge that gave them opportunities to earn wage through employment in the private and public sectors. After independence vocational and technical education gathered momentum after introduction of Education for Self- Reliance. The development of vocational education between 1974-1994, was under National Vocational Training Division and its shortcomings led to establishment of Vocational Education Training Authority which core mandate is provide, coordinate, regulate and finance VET in Tanzania (Sac, 2003).



Since Kenya gained independence, TVET has been regarded as a crucial element in the fight against youth unemployment. The major goal of TVET is to increase and broaden each person's employability. Before the country gained its independence, Kenyans were capable of making their own farming tools, weaving, pottery, and dwellings. These talents were passed down from parents or clans to the children. While Christian missionaries brought in professionals to train Kenyans in various trades, the construction of the Kenya-Uganda railway attracted Indian and other migrants who trained artisans and craftsmen. The Royal Technical College in Nairobi, which eventually evolved into the University of Nairobi, was founded in 1954 as a result of the creation of the Commission for Higher Education. The 8-4-4 system, which embeds vocational training from primary school to provide children with pre-employment occupational skills, standardized the vocational school curriculum in 1986. (Mwiria, 2005). TVET has witnessed institutional and curriculum changes since Kenya gained its independence in 1963, which has had an impact on its graduates. TVET programs are valued because they equip students with the skills and knowledge needed to enhance productivity, increase income levels, broaden access to job opportunities, and stimulate economic growth. Recognizing these benefits, Kenya has identified TVET as a vital pillar in its pursuit of Vision 2030.

To realize Vision 2030, the Kenyan government has invested heavily in (TVET) to foster industrialization and development (Republic of Kenya, 2018). Some of the measures put by the government of Kenya are; the enactment of TVET Act in 2013 with a mandate to streamline technical and vocational education (Kahihu et al., 2021) the enactment of Kenya National Qualifications Framework (KNQF) Act in 2014 for quality assurance and the establishment of Kenya Colleges, Competency Based Education Training (CBET) and

Universities Central Placement Services (KUCCPS) to coordinate admission of students joining universities and TVET's. The Kenyan government has also raised budgetary funding for TVETs and taken additional steps to provide them with cutting-edge technology, a (CBET) framework to improve the implementation of the curriculum and the TVETA.

TVETs in Kenya encounter challenges such as integrating education with work, insufficient teaching and learning resources, a lack of pedagogical skills among trainees, and inadequate industry engagement in curriculum development and delivery (Kigwilu, 2014; Akala & Changilwa, 2018). Meru County's TVETs grapple with similar issues as those experienced by TVETs across Kenya. These challenges have prompted the investigation into the relationship between institutional factors and the enhancement of employability skills among TVET graduates.

### **2.3 Development of Employability skills of TVET Graduates**

Rapid technological changes, globalization, and high levels of competition require those seeking for job and those already working to possess high employability skills (Awodiji & Magodidi, 2023). Companies want graduates who are proficient technically and have the necessary employability skills. Employers in various industries seek TVET graduates who not only possess academic qualifications but also demonstrate skills that enhance job readiness such as effective communication, teamwork, social skills, problem-solving abilities, interpersonal skills, creativity, technological proficiency, critical thinking, and leadership qualities (Awodiji & Magodidi, 2023; Muriuki & Dominic, 2022; Dean & East, 2019).

Globally unemployment is a major concern with many graduates finding themselves jobless for long periods of time, high competition on available jobs and mismatch of skills as per the industry expectations. Most graduates assume they will automatically be employed if they have succeeded academically (Awodiji & Magodidi, 2023). Graduates experience disillusionment with the realities of the workplace when their expectations for their careers are not fulfilled. Graduates with soft skills that are employable are sought after by the industry, as they have a big impact on output and profitability.

According to established definitions, employability is a collection of abilities that include both transferable skills like problem-solving, organization, and communication as well as specialized knowledge and abilities from a particular discipline. It also includes personal qualities like resilience, self-assurance, and attitudes that are desirable in the workplace (Rowe & Zegwaard, 2017). A country's progress is contingent upon the caliber of its human resources. To foster industrialization, the workforce must possess global competitiveness in terms of knowledge, skills, and attitudes (Oviawe, 2020). According to Ogbuagu (2017), TVET is the sole means of creating such a workforce. This sentiment aligns with UNESCO's (2015) assertion that education is paramount for development and that TVET serves as the linchpin for promoting peace, reducing poverty, safeguarding the environment, and enhancing living standards.

UNESCO works to promote skills for work and life framed by the Strategy for TVET 2022-2029 with the agenda of promoting TVETs for successful and just transitions among other things; addressing the challenges of unemployment as well as developing programmes for skills development (UNESCO, 2022). The new strategy which has been built upon the achievements of Strategy for TVET 2016-2021, considers the present and future priorities

of the individual, economy and the society. The concept of employability skills among TVET graduates is a universal one with several general names, including all-purpose, employability, vital, and core skills. Employability skills are broad or non-technical qualities that comprise accomplishment, acceptance, and individual characteristics that enable a person to find a job in a selected field of study and succeed in the targeted area of employment. Seven categories of employability skills—including foundation skills, which encompass fundamental, intellectual, and personal qualities—are seen as central by different industries. Workplace competencies include resources, interpersonal skills, knowledge, technology, and systems used (Nugraha et al., 2020).

Employability is a collection of personal qualities that increase a person's likelihood of landing and keeping a job, developing into a high-caliber service provider, and excelling in their chosen field, all of which are beneficial to the growth of a community and the economy (Asefer & Abidin, 2021). A person's employability is a combination of skills, knowledge, and personality attributes that improve their chances of landing a job and excelling in their chosen fields.

Considered crucial for employment are abilities like learnability and entrepreneurialism (Asefer & Abidin, 2021). Despite the fact that the majority of studies found both hard and soft skills to be crucial, they all agreed that graduates from technical and vocational institutions lacked certain skills (Ochieng & Ngware, 2021). The employability of TVET graduates depends on their knowledge, abilities, and attitudes, as well as their understanding of how to apply the skills they have acquired.

Employability, according to Holmes (2013), is the wide range of abilities, viewpoints, and conduct that businesses find valuable. Winberg et al. (2020), citing Oliver (2015), define employability as the ability to identify, acquire, adapt, and continuously enhance the knowledge, skills, and personal attributes that increase the chances for students and graduates to secure and create meaningful paid and unpaid employment, contributing positively to the workforce, society, and economy. Employability abilities are non-technical, general competencies such as understanding, accomplishments, and personal traits that help an individual land a job and flourish in their chosen industry (Ju, Zhang, & Pacha, 2012; Mello et al., 2017).

Ismail et al. (2021) define employability skills as the transferable abilities a person must have in order to be considered "employable," and which, if cultivated, boost the employment rate of graduates. In addition to having a strong technical grasp and subject matter expertise, companies frequently specify a particular set of skills that they seek in applicants. Employability skills are a collection of abilities that, if cultivated, raise the employment rate of graduates, according to this study. (Alvarez and others, 2021).

Employability skills, known by various names such as generic skills, key skills, core skills, and soft skills, are universally recognized concepts. Utilizing employability skills enables individuals to acquire the necessary abilities for securing employment, maintaining their jobs, and enhancing productivity (Sermsuk et al., 2014).

TVET plays a significant role in the development of employable skills, knowledge, and behaviors in the UK and is crucial to the country's sustainable economic growth TVET aims for high-quality training that meets the evolving skill demands of industries,

encourages innovative collaborations between industry and institutions, supports lifelong learning and retraining, and advocates for advanced technical and vocational qualifications and training. The UK TVET system, being learner-centered, demand-driven, and employer-focused, involves active participation of companies in the planning, execution, and assessment of TVET programs. The industry provides the necessary tools and equipment, knowledge, and training facilities, and the training results are evaluated based on employee outcomes rather than exam results (British Council, 2022).

The Indian government has placed a high priority on skill development and believes that a robust system of vocational education is necessary for the country's economic progress. The government has a revolutionary framework for education reform called National Education Policy 2020, which emphasizes the integration of higher education and vocational training with the goal of influencing academic knowledge and practical skills to give trainees industry-relevant skills and increase graduates' employability (Tripathi & Sheel, 2023).

Nugraha's (2020) study on employability skills in Technical Vocational Education and Training (TVET) in Indonesia highlighted that social skills, communication skills, and problem-solving skills are rated as the most important employability skills needed by TVET graduates. The study searched 120 Journals, and the literature was found from web science data like Scopus, Science direct, Saga Journals and Springer between November and December of 2006 to 2018 years. The 60 articles that were found relevant were analyzed. The findings demonstrated the value of employable skills for TVET graduates and how they can launch prosperous careers in their areas of specialization. The study concurred with an employability skills survey that found that, among other things,

communication, adaptability, problem-solving, interpersonal, and leadership abilities are critical in the manufacturing sector (Chan et al., 2018).

A study was done by UNCEF (2023) on labour market for youth in Libya with the aim of understanding Libyan labour market trends and landscape of employability and also identifying skills considered significant in the market. World Bank estimated Libya's unemployment rate for the youth to be at 51.4% in 2021. The study's goals included determining the gaps in young people's employability abilities, mapping the employability skills needed by industry at the point of job entry, and figuring out how to include employability skills into TVET curricula. The study found out some of the barriers to youth employment included; lack of relevant skills, mismatch of skills learnt in TVET institutions and the skills demanded by the industry at entry-level roles. The study recommended personal and interpersonal skills such as communication, team work, decision making and leadership as important for employment thus should be incorporated in the curriculum. It also recommended building of linkages between theory knowledge and practical application, alignment of programs with industry needs, improved linkages of TVET institutions and the industry as well as connection of trainees with employers to facilitate transition.

Awodiji and Magodidi (2023) conducted a study in Botswana to investigate the relationship between the employability of TVET graduates and their soft skills. A stratified sample technique was employed to choose 351 trainees from TVETs in Botswana. Questionnaires were utilized to gather the data; portion A contained information about democracy, section B dealt with employment for graduates, and section C was devoted to soft skills. STATA software was utilized for data analysis in order to determine the

correlation between the two variables. Descriptive statistics were analyzed using frequencies and percentages, while inferential statistics employed Pearson correlation to test the hypothesis. The findings showed that employability skills for TVET students after graduation were enhanced by soft skills. Graduates have a better chance of finding employment the softer skills they possess. The study found out problem solving skills, innovative and creativity, leadership skills and communication skills enhanced graduate employability.

Studies conducted in Kenya aimed to determine the employability competencies required of TVET graduates in Kenyan industries, particularly as the country moves towards industrialization and economic stability. These studies explored the range of skills influenced by courses offered at TVET institutions and evaluated the effectiveness of programs offered by Kenyan institutions. The research utilized a cross-sectional descriptive approach, focusing on graduates from scientific, technical engineering, mathematics, and humanities courses at technical and polytechnic institutions in Kenya, as well as industry participants and TVET department heads. A sample of managers from relevant sectors in Mombasa County was selected for the study. Data collection involved the use of questionnaires, and statistical analysis was conducted using SPSS for both descriptive and inferential purposes.

The findings showed that a variety of courses offered by TVET colleges lack the necessary employability skills for the sector, necessitating coordination between the institutions and the sector to map the desired capabilities. This study is similar to the proposed study in that the respondents share similar characteristics to TVET graduates in Meru County, making



it the intended target population. As a result, the study will direct the researcher in gathering and comparing the research's findings to those from other counties (Kiruga et al., 2018).

According to a study by Muriuki and Dominic (2022), the skills industry identified, that should be developed in technical training institutions to enhance employability included; communication skills, problem solving skills, team work, creativity, critical thinking, digital literacy skills, entrepreneurial skills and leadership skills as the most essential skills. The study however noted that in TVET institutions syllabus; communication skills, social studies and ICT skills were taught in the first academic year only with an emphasis being passing exams. According to the study, trainers faced a number of challenges that hindered them from delivering employability skills to the trainees. The challenges include; principals whose interests were supply driven due to misplaced priorities, inadequate time for practical, lack of motivation, inadequate teaching and learning resources.

### **2.3.1 Communication Skills**

Employers look for strong communication skills on prospective employees. Graduates' ability to communicate effectively and concisely across various media is greatly influenced by their interpersonal and communication skills. Communication skill helps workers connect with both peers and superiors, listening skills are extremely important in the workplace. Graduates who can communicate well are likely to get the jobs they want as well as helping the organization get more clients (Suleman et al., 2022). While most studies agree that graduates need employability skills to be employable and that practical skills are more important than theoretical ones, they ignore these employability drivers (Ahmad & Shah, 2017; Kintu et al., 2019; Sumanasiri et al., 2015). According to Fadhil et al. (2021), employability is significantly connected with communication skills, attitude, integrity,

learnability, motivation, and collaboration. According to the Ochieng and Ngware (2021) study, soft skills are developed through extracurricular activities, which improve students' employment prospects. The issue is that few trainers are aware of employability skills, which prevents them from having an impact on trainees.

Employers in Australia assert that communication and interpersonal skills are critical competencies graduates must possess to be competitive in the job market (Graduate Career Australia, 2018). While communication skills are taught in TVET colleges, research indicates that graduates lack these skills and that they are the least developed (Jackson, 2016; Clokie & Fourie, 2016; Sonnenschein & Ferguson, 2020). Internships, conversations, group projects, group presentations, and tutorials where instructors call and encourage participation are all effective ways for students to hone their communication skills. There is also need for trainers to develop their own communication skills in order to support development of the same in the trainees (Heron, 2019).

### **2.3.2 Problem Solving**

Problem solving skills contribute to the employability of graduates. For TVET students, problem-solving abilities are crucial because they enable them to comprehend, analyze, and provide answers to challenges. Employees with problem solving skills can easily sort out problems as they arise in the organization (Suleman et al., 2022). Graduate's initiative and self-drive result in the development of ideas, which in reality result in the flow of work. A graduate with the capacity to work efficiently under low pressure is a very valuable asset (Yen et al., 2023). A worker with organizational skills is more likely to create goals and meet deadlines, which helps the work flow.

The goal of the study by Labrovi et al. (2022) was to identify the crucial competencies for work as a trainee in Serbia. The study examined various vacancy reports for entry-level positions in the management and IT industries using a mixed research design. It was discovered that graduate competitiveness in the IT and management industries was boosted by, presenting skills, and the problem-solving abilities capacity to learn continually. The analysis was done using specific positions in the IT and management industries, thus even while the conclusions were very pertinent and applicable to these two fields, they might not be as applicable to other practical fields like hospitality, the textile industry, or engineering.

According to a survey conducted in Indonesia by Othman et al. (2022), one of the skills that make individuals more likely to gain employment that employers seek is the ability to solve problems. The study examined employability skills influence on career adaptability among the undergraduates. It was a quantitative in nature and questionnaires were administered using a Likert scale of (1-5). Career adaptability was assessed based on problem-solving skills, communication skills, and teamwork abilities. 136 respondents were conveniently sampled. After processing the data using SPSS version 23, multiple regression analysis was conducted to determine the relationship between the dependent and independent variables. The results established problem solving skills influenced career adaptability significantly ( $\beta=0.322$ ,  $p=0.000$ ) followed by team work skills ( $\beta=0.310$ ,  $p=0.000$ ) while communication skills were not significant ( $\beta=0.104$ ,  $p=0.252$ ). The study concluded that higher institutions of learning including TVET institutions should develop programs and extra curricula activities that enhance problem solving skills and team work skills.

According to Ochieng and Ngware (2021), the lack of soft skills and personal attributes among African trainers contributes to the fact that most students lack the necessary competencies. According to Munishi's (2016) research in Tanzania, the trainees must have the necessary knowledge, abilities, and attitude. According to Kamuhabwa (2019), structural unemployment is attributed to a lack of interpersonal skills, problem-solving abilities, collaborative skills, and the capacity to connect theory and practice. Before sending graduates out to hunt for jobs, it was encouraged for them to receive career coaching and growth in the industry workshops. Various studies identify various skill sets as necessary for employability. However, there is no established set of abilities required for employment.

### **2.3.3 Team Work**

Collaboration, working with others from different backgrounds, participating in team discussions, and the capacity to get along with others are all examples of team work skills. Employability is impacted by teamwork abilities. A graduate who can collaborate well with others produces little to no disruption to the business, allowing for the accomplishment of objectives (Suleman et al., 2022). Team work skills cannot be underestimated in the industry due to working environments with diverse gender, racial, social, cultural, economic, educational and religious backgrounds (Yen et al., 2023). Employers are eager to hire workers who can collaborate with others and operate as a team to accomplish a shared objective. Employable graduates and Kornelakis and Petrakaki (2020) should be able to collaborate and work as a team to accomplish goals (Yen et al., 2023). For TVET graduates, the ability to work in a team is an essential skill because it fosters discipline and expertise in order to complete a collective task.

Team work is beneficial to every organization including, better decision making, sharing of knowledge, motivation, social support, effective communication, better problem solving, improved conflict management, enhanced critical thinking, achievement of organization goals, management of unexpected situations and increased individual and group learning (Hogan & Young, 2020). The higher the demand of team work skills by the employer the increased demand of the same from institutions of higher learning graduates which includes TVET. Employers continue to lament that graduates lack the teamwork abilities that have been acquired via the use of teamwork teaching approaches in educational institutions (King & King, 2021; Wilson et al., 2018). Employers are looking for graduates with teamwork abilities, not just students who participate in group projects and work in groups.

Employers in America value new graduates' strong interpersonal and teamwork skills, according to a 2009 survey conducted by the Association of American Colleges and Universities (Hughes & Jones, 2011). Employers requested the capacity to operate in a team, among other teamwork qualities, according to an annual Job Outlook Survey conducted in 2012 and 2015.

In 2022, Bhatt et al. conducted a study aimed at identifying the employability skills required by business graduates and determining the most effective methods for teaching and learning these skills. The data was collected by questionnaires that employed the five-point Likert point scale. 43 representatives of the business community, 44 academic faculty members from universities, and 450 graduates employed by different companies made up the respondents. The study revealed that problem solving, team work and communication skills among others skills were highly required employability skills by employers.

Ugochukwu et al. (2020) studied TVET trainers in underdeveloped nations to find out how they help students improve employable skills. Trainers employ a variety of strategies, such as problem-based learning, student-centered learning, and collaborative learning to transfer knowledge to students, as opposed to teacher-centered learning, which is typically passive. According to the study's findings, TVET instructors in 19 developing nations employed innovative teaching techniques to help students gain the skills necessary for fulfilling careers, independent work, and a competitive edge. The study employed an interview approach to get data from the respondents. The theme areas investigated are similar to what this study seeks to learn.

Wilson et al. (2022) conducted research to gauge TVET competency improvement. The research conducted in Kenya involved a sample size of 262 respondents and utilized a descriptive, exploratory, and correlational research methodology. Data collection was carried out through questionnaires, and both descriptive and statistical methods were employed for data analysis. The hypothesis was assessed using regression analysis to determine the nature of the relationship between the independent and dependent variables. The findings of the study revealed that collaboration between trainers and trainees enhanced team performance within TVET institutions. Additionally, the study identified that trainees demonstrated critical thinking and problem-solving skills during their academic pursuits. Team work increases graduates' confidence, improves communication and collaboration skills thus enhancing productivity (Chan & Pheng, 2018). There are challenges connected with team work such as; mistrust, unaccountability, conflicts and absence of commitment (Burriss-Melville et al., 2023). Though team work seems to be

integrated in the curriculum, employers are dissatisfied with graduates who are not prepared to function effectively in a team environment.

#### **2.3.4 Leadership Skills**

The capacity to persuade and inspire people to accomplish a shared objective is the essence of leadership. In the modern day, it refers to the capacity to independently establish objectives and involve others in the accomplishment of shared goals (Grigoropoulos & Grigoropoulos, 2020). One of the consequences of student development that instructional strategies must accomplish is leadership (Hishamuddin & Shukor, 2021). Interacting with others within the institution is made easier for trainees with leadership qualities (Page et al., 2021). Leadership has a major role in career growth and is a strong predictor of graduates' employment prospects in the labor market. Many employers recruit graduates with a projection of making them future leaders in the organization, thus they look for people with or have potential leadership skills.

Leadership skills are on high demand and they help one to lead and guide others in the right direction to achieve the desired goals (Awodiji & Magodidi, 2023). Leadership skills are crucial in the ever-changing world in technology, information, competition and demands in the job market (Dean & East, 2019). Leadership skills need to be developed when trainees are in the TVET institutions. This can be done through assigning duties and responsibilities to the trainees by the trainers. Trainees can participate in finding solutions to academic problems, monitoring and supervising the class and assigning duties to them when there are seminars, competitions and workshops as well as trainees being in student leadership within TVET institutions (Page et al., 2021). Leaders need to be trust worthy,

reliable, consistent, walk the talk, confident, team players and excellent communicators; traits that are significant in graduate employability. Development of leadership skills cannot be over emphasized as leadership is integral in all aspects of life including personal and career organization.

A study by Gerhardt (2019) in Landon using qualitative method was conducted on five group leaders among students. The research found leadership skills promoted confidence in employment. The study established leadership skills had positive influence on employability of graduates. TVET institutions should embrace leadership programs that develop leadership skills which promote graduate employability (Page, 2021). Development of leadership skills enhance trainees team work and communication skills and build their self-efficacy capacity. According to a study conducted in the United Kingdom in 2021 by Rebecca et al., university courses did not aid in students' development of leadership abilities.

Further study by Kim et al. (2022) in Kentucky universities focused on exploring how extracurricular activities influenced student leadership development. The study established that extracurricular involvement affected the outcome of leadership development. Students who were involved in several extracurricular activities had improved leadership skills. The study equally found that one's perception on leadership skills increased community values. The study recommended trainers to encourage their trainees to get involved in extracurricular activities as they enhance leadership skills to promote development of employability skills. TVET institutions are required to develop programs that promote extracurricular activities.



Studies show employers are seeking for employees with leadership skills to meet organizational goals (Awodiji & Magodidi, 2023). Leaders are role models who are required to show enthusiasm in carrying out their tasks if they are to influence their followers. They should be approachable, courteous, practice equity and equality without discrimination when dealing with others.

#### **2.4 TVET Trainer Characteristics**

Trainers are the major stakeholders in delivering TVET and are tasked with delivering key skills to trainees and quality work force as development of employability skills falls upon TVET trainers (Muriuki & Dominic, 2022). Nothing much can be achieved without experienced and qualified trainers who plan and execute TVET programs. According to Muriuki and Dominic (2022), TVET trainers should be supported to improve their capacity, subject matter knowledge as well as exposure to the latest industry trends and technologies. Quality education is determined by the quality of trainers, how knowledgeable they are, their subject matter mastery, professionalism as well as the methods of instruction. To meet industry needs, trainers play a crucial role in ensuring the relevance and quality of TVET (UNESCO-UNEVOC, 2020). TVET educators require specific qualities, knowledge, abilities, and competencies to effectively prepare trainees for the workforce, imparting knowledge, skills, attitudes, and values that enhance their employability (European Commission, 2018; Latif, 2022). TVET instructors must possess the information, skills, and personal qualities necessary to transfer those qualities to their pupils.

A poor teacher instructs, a good teacher explains, a superior teacher exhibits, and a great teacher inspires (Arthur, 2022). Trainers are in the front line of delivering and one of the priorities of UNESCO-UNEVOC' is to develop the capacity of trainers in TVET institutions through skilling and up skilling on what the industry requires as they impact the same to the learners (UNESCO, 2022). In the ever-complex changes in the world, where trainers are required to be innovative in their teaching and learning ways to meet the 21<sup>st</sup> Century skills (Arif et al., 2021) the demands of TVET trainers are speedily growing, thus requiring support and training from the employer and the industry. The challenge most TVET institutions have is inadequate trainers and inadequate support staff which leads to trainees ending up with theoretical knowledge as opposed to practical and interpersonal skills (Mwashington and Kitainge, 2023; Anindo, 2016). TVET trainers are intended to teach practical skills, which Sifuna (2020) contends Kenyan TVET teacher training does not adequately prepare them to teach.

The largest VET system in the world is reputedly found in China (People's Republic of China, 2022). About 29.15 million trainees enrolled in technical colleges and schools in 2022. In spite of this, it is anticipated that China will lack 30 million personnel in the manufacturing sector by 2025 (Zhang et al., 2023). Great-caliber VET graduates will be in great demand due to growing economic and industrial changes, creating a need for highly qualified professional personnel. Zhang et al. (2023) conducted empirical research on the variables impacting vocational education and training teachers' professional competency. The diagnosis of professional competence was made using a large-scale diagnostic technique. Over a ten-year period, 601 VET teachers at 39 vocational colleges in China were given questionnaires. To investigate the teachers' level of professional competence,

pathway analysis was used. The study discovered that professional competency was influenced by skill awards, the highest level of professional qualification, the type of course—theoretical or practical—and the highest academic degree.

In Africa, most TVET institutions have inadequate trainers who resign in numbers due to poor working conditions. In Niger, Mauritius, and Mauritania a quarter of trainers resign each year while the attrition rate in Djibouti every year stands at 75% (Africa Center for Economic Transformation [ACET], 2023; World Bank, 2023).

According to the TVET Act of 2013, TVETA was tasked with accrediting all TVET trainers in order to guarantee high-quality training in Kenya. According to Afeti (2017) and Nathaniel (2020), a TVET qualifications framework promotes lifelong learning, flexibility, and coherence in training. It also facilitates the recognition of prior learning within the TVET system, which is crucial for skill development. From the quality assurance manual of TVETs in Kenya, a minimum TVET trainer qualifications and compulsory industrial attachment needs to be enforced so that they can be able to prepare trainees for employability.

In Kenya, a study by Muriuki and Dominic (2022) on retraining TVET trainers noted industries are dissatisfied with inadequate employability skills among prospective TVET graduates due to the technological changes yet TVET institutions are not keen in infusing the same to trainees. The research adopted desktop research and quantitative survey method in order to establish TVET trainer perspective, challenges and mitigations that address development of employable skills for the dynamic industry. The questionnaire was used to collect data. The target population of 550 long service TVET trainers and newly recruited

trainers pursuing in service at KTTC. The study found out that TVET trainers face challenges in catching-up and implementing skills necessary for the changing technology in industry, they lack adequate industry exposure and concentrated more on trainees passing examinations. The study recommended industry to be involved in teacher training. The recommendations were; trainer qualifications should be purely technical, demonstrating industrial experience before employment, retraining and up skilling of teachers, equipping TVET institutions with adequate and relevant training equipment, infusing of employability skills in the curriculum, a shift from exam to skill-oriented training and enhanced industrial collaborations and partnerships. A characteristic of TVET programs is the presence of well-trained, experienced, technically skilled, and enthusiastic instructors who prepare trainees with quality, marketable skills for employment (Mohamed, 2022). However, there is a need to develop policies and frameworks to ensure highly qualified TVET trainers and instructors (UNESCO, 2022). According to Muriuki and Dominic (2022), many TVET institutions in Kenya, including those in Meru, suffer from a shortage of adequately trained trainers who possess the basic technical skills required to operate workshop machines and training equipment effectively. They noted that inadequate trainer preparation and recruitment have led to deficiencies in TVET skills delivery due to gaps in TVET teacher pedagogy, lack of upskilling opportunities, inadequate industry involvement, and lack of employability skills in the curriculum. Muriuki and Dominic (2022) recommended that TVET trainer qualifications should emphasize technical expertise and industry experience before recruitment, while employability skills ought to be given precedence and seamlessly woven into the curriculum. This study investigates how trainer characteristics, including educational level,

experience, job knowledge, and attitudes, influence the development of employable skills among TVET graduates in Meru County.

#### **2.4.1 Educational Level**

A TVET trainer who has received the necessary pedagogical training and certification in their field is considered fully trained. For TVET trainees to adopt the proper attitude and aspirations during all the crucial phases of their academic journey, TEVT trainers must have the necessary personal, ethical, professional, and instructional qualities (Muriuki & Muguti, 2022). Standards established for trainers in the nations instructing blueprint help determine the qualities of TVET instructors. The roles of instructors or trainers are based on skilled instruction, goal-oriented, technical or scientific planning, and good organizational skills that reflect the instructional process and include a methodical evaluation of the instructor.

A good trainer is one who comprehends the curriculum thoroughly, employs a range of teaching techniques, uses new technology and is aware of the interests and skills of the learners and the industry (Mansour, 2021; UNESCO-UNEVOC, 2020). TVET institutions are more valuable and have a greater impact on the education sector than all other higher education institutions combined, even though they may not have as much of an impact as other higher education institutions. When trainees are adequately equipped for the future workforce, TVET helps them realize their full potential. TVET instructors are crucial in ensuring that their trainees acquire the necessary skills to meet the demands of the industry as they deliver knowledge and transfer experience during induction and training (Omar, Zahar & Rashid, 2020). To produce the best TVET graduates for the industry, trainers must receive both high-quality and high-quantity training. As a result, they must continuously

upgrade their skills and knowledge to meet the constantly changing needs of both the industry and trainees in the workplace (UNESCO-UNEVOC, 2020, Muriuki & Muguti, 2022).By examining the caliber of the instructions, one can gauge the quality of the trainer. Advanced diagnostic and pedagogical psychology skills in teachers are essential for training. In addition to enhancing competencies, ongoing professional development for trainers improve their effectiveness and also helps them build relationships with important business figures (Spöttl & Becker 2016, Langat et al., 2021). Trainers are expected to creatively engage students in order to promote learning, which necessitates having the necessary skills and instructional resources (Joo, 2018). South Asian studies revealed that, based on their performance, more seasoned teachers are pleased with their trainees' academic results (Asian Development Bank, 2022). India now ranks among the top education hubs in the world thanks to reforms to its educational system. The most crucial human resource needed to build India and make it competitive in the global market is an educated and talented workforce. Teachers and trainers play a crucial role as agents of change in the knowledge society. Therefore, TVET trainers should be well-equipped not only with academic qualifications but also with a deep understanding of global systems and processes. The Indian government recognized the necessity to guarantee TVET instructors have the necessary knowledge, abilities, and attitude to work in the field. Through the in-service training of TVET trainers, regular instruction and updating of skills in accordance with the needs of the evolving sector is vital (Ajithkumar, 2016).

In Kenya, a trainer in a TVET institution is required to apply for a trainer's license from the TVET Authority. For implementation of CBET curricula, the trainer must have the following competences; competency to plan for a training session, deliver the training,

conduct assessment as well as maintain the training facilities. Most trainers in TVET institutions are directly recruited from Kenya Technical Training College (KTTC) and local universities; are employed before acquiring sufficient technical and industrial experiences with insufficient practical exposure in related industries where they are expected to train (Muriuki & Dominic, 2022). Majority of the trainers lack pedagogical capacity leading to inappropriate teaching and instructional methods (Akala & Changilwa, 2018).

A study by Chepkoech et al., (2021) sought to examine the capacity of trainers in quantity and quality in western Kenya. Correlation study design was employed. Data collection tools were questionnaires and interview guides administered to trainers (400) and principals (15) respectively. The findings revealed that 79% of trainers agreed TVET institutions had inadequate staff thus the institution hired part time trainers. The study found out majority (63.4%) of the trainers had the first degree. The study recommended TVET institutions to be adequately staffed with qualified trainers.

#### **2.4.2 Experience**

Through lifelong learning the skills of trainers can be continually upgraded to sharpen their skills in tandem with technological changes. A great trainer keeps learning. Such a trainer transfers knowledge and new skill, boosts morale and ensures the objectives of the training are met. An experience trainer has knowledge and understanding of many teaching methodologies and can develop and use diverse training materials. The competence of trainers depends on how they continue to learn and upgrade their knowledge and skills (Technical Vocational Education and Training Authority [TVETA], 2020). Globally, training of trainers is highly recognized and encouraged as per the curriculum requirements

so as to meet the demands of the labor market. The United States Bureau of Labor Occupations classifies TVET instructors based on fundamental duties such educating students one-on-one and in groups, creating lesson plans and activities, and choosing teaching strategies that work best for their trainees. TVET instructors want to make sure that all students achieve the specified objectives for each lesson. The ability to communicate with key stakeholders, collaborate on projects with important stakeholders, and work through challenging concepts that their trainees are unable to understand are among the key competencies for TVET trainers. The ability of the instructors to be understanding of trainees who struggle to grasp concepts quickly is a crucial factor. Although some nations have created their own trainer competence frameworks that are in line with their country's industrial needs and trainee assignment, studies conducted in the USA show that TVET trainer competence frameworks are well-known compared to trainers in general education. Governments need to allocate adequate resources to training and continuous professional development of trainers which boosts their experiences (Nathaniel, 2020).

In Kenya, a study by Muriuki and Dominic (2022) noted most of the TVET trainers had cumulatively below three years prior experience working in related industry. Majority of the respondents had less than one year of prior work in the industry. That confirmed most TVET trainers lacked adequate industry exposure thus cannot transfer the required employability skills to those they train.



### **2.4.3 Job Knowledge**

For each career to succeed, a specific set of knowledge, skills, and talents are necessary. It is thought that a product's quality is based on the knowledge, expertise, and skills of its producers. Trainers need to have a wide understanding of the course they teach and clear ways of making the content knowledge reachable to the trainees which relates to trainees achievement. Consequently, TVET trainees can only have employable skills if the trainers have been adequately equipped with the right skills (Muriuki & Dominic, 2022). Job knowledge is about the trainers understanding their responsibilities of the job of training. Clarity of ones roles and responsibilities impacts work motivation, satisfaction and performance of the trainers. In order to fulfill their training responsibilities, TVET trainers must possess both soft and technical abilities; as a result, they must advance their practical and technical knowledge and advocate for a student-centered teaching methodology (Nathaniel, 2020). It is a requirement in Korea for instructors who teach practical skills to have completed practical skills programs at accredited universities and scored highly on examinations in their specialist fields. Accredited instructors are required to complete theoretical and practical examinations as well as have significant professional experience in their fields of specialization under the Workers and Skills Development Act of 2004. In Latvia, TVET instructors must carry out educational programs in accordance with industry standards to encourage trainees' freedom and innovation. A minimum professional qualification of postsecondary education in a related discipline is needed of teachers of vocational topics (Dajja et al., 2019).

Furthermore, Ali et al. (2017) proposed that graduate employability and occupational knowledge are influenced by the trainer's skills and knowledge of the subject matter. The

subject matter of the training must be thoroughly understood and known by the trainers. To impart knowledge and teach a skill at the right level, one must have practical experience. They advocated for the necessity of hiring qualified workers in order to increase businesses' profitability. However, the focus of this study was on the institution's profitability and trainer characteristics. These studies were all conducted in an Asian setting and only looked at student academic test performance and teacher effectiveness. TVET trainees' employability is largely shaped by teacher preparation programs and ongoing professional development, claim (Bünning et al., 2022).

An experimental methodology was used in a study by Gerritsen et al. (2016) done in Europe to assess the impact of teacher quality on the academic achievement of Dutch Twins. The test results were controlled using teacher traits like experience, and the twins entered the school at the same time. According to the study, instructor experience increased student performance. This study was so focused on the grade-point test scores of twins that it may not be applicable to all students, even though the effect was moderated by class size and peer composition. The study placed a strong emphasis on job training for teachers to advance their skills.

The career success of 418 apprentices in central Europe who had made the transition to the labor market was the focus of a study by (Hofmann et al., 2021). The experimental study was divided into three phases: pre-training, training, and apprenticeship. Using multinomial logistic regression, the study discovered that career performance was influenced by training context, career options, and personality traits. To improve students' professional performance, it suggested providing the VET educators with ongoing on-the-

job training. The study, meanwhile, concentrated on pupils with special needs, thus it might not be applicable to other TVET students in Africa, particularly in Kenya. According to the majority of research conducted in Europe (Bünning et al., 2022; Gerritsen et al., 2016; Joo, 2018; Okolie et al., 2020) teacher competence is a crucial factor in explaining students' academic accomplishment.

In the knowledge-driven job market of the twenty-first century, studies performed in the United States of America imply that teachers require soft skills to model trainees in a professional way (Kiruga et al., 2018). To understand what and how students learn best, teachers must dedicate themselves to ongoing professional development, promoting teamwork and building trust in the educational process. Due to their hectic class schedules, exam environments, and focus on helping students pass exams, most teachers do not have the time or energy to invest in developing these abilities. The stakeholders must therefore be deliberate when choosing programs to improve teachers' skills (Kiruga et al., 2018).

The competency framework for TVET trainers in Tunisia is built on competencies related to closely related care tasks, such as training sessions, the creation of pedagogical resources, and the use of pedagogical techniques in teamwork. Additional training updates, instructional resources, and assessment tools evaluation of learning outcomes the competence is connected to extracurricular activities like keeping track of and helping to improve TVET systems. The techniques used to create systems involve hiring and orienting new employees. TVET instructors are hired in Tunisia based on their credentials and test results (Ambiyar et al., 2018).

In Kenya, the study by Muriuki and Dominic (2022) underscored that most TVET trainers had challenges with the technological changes in the industry with 17.74% of the respondents admitting that some trainees understood latest technology and knew the industry expectation more than them.

#### **2.4.4 Attitudes**

An effective trainer is one that cares about the success of the trainees. Attitude is the core of the trainer because that is what the trainees see, feel and connect with. The trainer's attitude towards self and others are the elements that make a good trainer. It is the duty of instructors to understand that their students are unique individuals with attitudes, learning styles, motivations, and worldviews that diverge greatly from their own. A typical TVET trainee is described by Maurice-Takerei (2017) as having a lower mental capacity and a socioeconomic background. A TVET trainer's job is to provide a combination of career development, social work, and educational work, along with a strong dose of patience, understanding, and care.

According to Okolie et al. (2020), graduates in Africa who want to become TVET teachers must have employability skills. In their study, 35 TVET instructors from 19 different African nations were used in the qualitative study. Thematic analysis of the study's findings revealed that African teachers do not help students develop employable skills. The study suggested that teachers pursue ongoing professional development to increase graduate students' productivity and marketability. Training and retraining TVET trainers can improve their attitudes as they gain new knowledge and technology in industries which they transfer to trainees thus making them more relevant for the industry. Training and retraining TVET trainers can be done through attending in-service training, workshops,

seminars and conferences. Training and re-training shape trainers' personality, attitudes and habits and improves their effectiveness and performance (Muriuki & Muguti, 2022). Using Ghana as case, Kissi et al. (2020) investigated TVET institutions in Africa and discovered that the instructors' educational preparation was out of step with modern technological advancements, making it difficult for them to pass on their knowledge to the trainers.

The need to raise awareness and the caliber of TVET institutions in Nigeria was underlined by (Ayonmike & Okeke, 2020). The report conducted a comprehensive analysis of TVET institutions in Nigeria and highlighted potential for teacher training. As a result, graduates would be more employable. Their study was silent on the aspects of teachers that support the transfer of information and marketable skills, even though most African trainers in TVET colleges find it challenging to do psychomotor tasks like operating machines (Ayonmike, 2014). Munishi (2016) conducted research in Tanzania to determine why candidates lacked soft skills. Among other things, the study concluded that ineffective trainers prevented TVET graduates from acquiring marketable abilities.

Three objectives guided Langat et al.'s (2021) study on the effects of trainer competences in Kenya: the influence of the trainer's educational background, continued professional development, and pedagogical expertise. The study employed a descriptive survey method, surveying 55 individuals from a target group comprising 181 registrars, deputy principals, and principals. Institutions were selected using a stratified sampling technique. Data were collected through questionnaires, and both descriptive and inferential statistical analyses were conducted. According to the study, there exists a significant correlation between the

three objectives and effective training. The report suggested spending money on professional trainer development for Kenyan TVET institutions to provide excellent training. However, the survey did not address the issues that this study intends to address, such as trainer experience, work knowledge, and attitudes.

In a 2016 study, Orangi et al. examined the traits of trainers in 18 TVET institutions in Kenya. With 452 respondents, the study employed a descriptive survey approach, and its conclusions demonstrated the need for improved teacher preparation. Teachers need to be experts in their fields, be able to articulate concepts clearly, inspire students, and foster meaningful learning engagement. Studies on the textile sector in Kenya concur that teachers' content expertise and teaching prowess have a positive impact on students' academic progress. While the majority of research concentrates on academic success, few identify the type of student achievement that was examined (Gerritsen et al., 2016; Okolie et al., 2020).

In addition, Mutua et al. (2019) investigated the influence of CBET implementation on the skill acquisition of visually impaired students in Machakos County, Kenya, as well as the qualifications of trainers. 70 trainers, 20 department heads, and 2 principals participated in FGDs and questionnaires using a mixed design methodology. According to the report, there are not enough trainers who are capable of working with visually impaired students, and those who are accessible lack critical credentials. The degree to which trainers' credentials influenced the visually impaired students' ability to pick up abilities was largely discovered. The study was limited to visually challenged students and may not be

generalizable to other TVET students, so it is unclear whether the learners' capacity to find employment was increased as a result of their skill acquisition.

On the other side, Kimathi et al. (2020) evaluated trainer characteristics on their capacity to foster entrepreneurship upon graduates; 329 graduates from six public TVET institutes in Kenya. The data were collected using a structured questionnaire employing a 7-point Likert scale. Both descriptive and inferential statistics were employed in the data analysis process. The findings indicated that the trainer had an impact on graduates' knowledge of entrepreneurship (mean of 5.29, standard deviation of 1.915), and that the trainer served as a mentor, inspiring graduates to pursue entrepreneurship (mean of 4.90, standard deviation of 2.056). The research concluded that trainer characteristics significantly influenced graduates' entrepreneurship. Trainers not only served as role models and business mentors but also motivated graduates to initiate their own businesses. The study suggested giving graduates access to corporate networks, enhancing industry collaborations, matching graduates with mentors, and enhancing trainer ability.

A substantial favorable association between trainer traits and creating entrepreneurs among Kenyan TVET graduates was discovered by the study. It hasn't been emphasized how important it is to comprehend and use the mentioned trainer attributes. It is possible to conclude that a teacher must possess a particular set of attributes in order to teach pupils information and skills. Ongoing professional development is also essential for instructors to acquire new skills (Shute, 2019). Trainers need to possess the necessary topic knowledge, skills, and disposition. The trainer must have sufficient expertise in teaching techniques and be able to use a variety of learning strategies that interest and engage the

students. They should also be able to take advantage of technology, such as using tablets, cellphones, and computer laboratories, to gain quick access to information on the internet (Kimathi et al., 2020). Therefore, if Kenya has to become industrialized, TVET institutions must have sufficient supply of qualified trainers who are well equipped with a wealth of expertise using instructional strategies that maximize the transfer of skills to the trainees (Audu et al., 2013 & Langat et al., 2021).

## **2.5 Teaching-Learning Resources in TVET Institutions**

Effective TVET training necessitates sufficient resources to ensure that trainees are prepared for the market and meet industry requirements. Proper modern training instruments and equipment, sufficient training materials, pertinent textbooks and training manuals, and practical application by the learners are necessary for producing high-quality skills (Nathaniel, 2020; Muriuki & Dominic, 2022). Teaching and learning materials are referred to as learning resources. The number of students already enrolled and anticipated, as well as the best teaching methods for all learners, defines the teaching-learning resources in TVET colleges. The theoretical lessons and the anticipated practical abilities establish the learning environment and space. Depending on the training requirements of the trainees, some TVET institutions may decide to pool or lease equipment. Given that TVET learning is practical and industry-focused, some institutions choose to move workshop experiences from the institute to employer locations as part of the learning process (Mbatha, 2021). Educational resources are divided into the following categories at TVET institutions: human, material, physical, financial, time, and information resources (Yigezu, 2017).



Tutors, support personnel, students, and stakeholders who directly or indirectly oversee the institution make up the TVET institutions' human resources. Organizing, coordinating, and controlling resources are the primary function of human resource management (Usman, 2016). Print and electronic textbooks as well as ICT teaching tools are examples of materials resources. TVET institutions make use of the institution's physical resources, including classrooms, labs, libraries, workshops, auditoriums, and leisure areas. Time spent in TVET is crucial for carrying out learning activities and is necessary to ensure learning occurs on both a personal and institutional level (Msimanga, 2019).

Materials on inclusion or behavior policies in schools, instructions for administering tests, and information for new instructors are examples of institution-specific resources. For teachers to utilize in a library or specific part of the staff room, some organizations supply books or journals about teacher development. Additionally, all teachers have access to online materials, particularly publications on teaching and education.

Inadequate and insufficient infrastructure is a major constraint in quality and quantity development of employability skills of TVET graduates (AfDB, 2022). It is the infrastructure that the institutions have available that supports reading, learning, and the dissemination of information and practical skills to trainees. Insufficient modern and quality infrastructure for skill development is a major challenge thus forcing Africans to seek the skills outside the continent (AfDB, 2020a). The inadequacy of ICT infrastructure and connectivity affects quality service delivery, accessibility of remote areas and reduces enrolment of trainees in TVET institutions. Low penetration of internet connectivity in most African countries has affected the youth acquisition of digital skills (AfDB 2020a, AfDB 2020b).

To ensure that students are completely interested in their learning, trainers employ a variety of captivating and engaging teaching techniques when introducing the subjects included in the curriculum. By making learning more enjoyable, dynamic, and engaging, these tools or resources can assist students in turning theoretical knowledge into practical application. Despite government efforts to equip technical institutes with modern equipment (PSCU, 2019), teaching and learning materials remain insufficient in TVET institutions in the coastal region (Mwashighadi et al., 2023).

A study conducted in Zambia by Mulenga and Chileshe (2020) examined the adequacy and suitability of teaching and learning resources. It found that 74% of trainers believed the current equipment and infrastructure were insufficient to adequately prepare trainees with the necessary skills. Using a mixed-methods approach with a convergent concurrent design, the study gathered and analyzed quantitative and qualitative data separately before comparing and interpreting the results. Sampling methods included purposive selection of 6 principals and 2 directors, alongside stratified and simple random sampling of 60 trainers. Trainers reported inadequate teaching and learning materials for both theoretical and practical education, aligning with earlier findings by Kigwilu & Akala (2017). They also disagreed that skilled mentors during industrial attachments effectively equipped trainees with job-preparatory knowledge (mean 2.57, SD 0.620) and noted a lack of tracer studies (mean 1.84, SD 0.779). In summary, the study concluded that TVET institutions in Zambia faced challenges due to insufficient teaching-learning resources, hindering the ability to provide practical training that meets industry demands for skills and competencies. It recommended equipping TVET institutions with adequate, relevant teaching-learning resources key to developing graduate employability skills.

In Kenya, the effects of learning resource availability in youth polytechnics in Kakamega County were investigated by (Barasa & Kwasira, 2019). The human capital theory was applied in a descriptive research approach including 105 individuals. Utilizing SPSS version 24, the quantitative data was evaluated, and the study found that the accessibility of resources is what accounts for the youths' economic empowerment in Kakamega County. Economic empowerment served as the study's dependent variable, and the only independent variable included was learning resources. Using 229 students from technical training institutions in Nairobi, the report recommended that counties, the federal government, and donors provide funds for the provision of teaching and learning tools for Ndile (2018) evaluated the effect of CBET method delivery on enabling employability. The quantitative study sampled the replies using questionnaires and stratified random sampling techniques. The study also discovered that competency-based education was successful in enhancing graduates' employability and industry-related abilities.

Orangi et al. (2016) used a sample size of 452 respondents in the clothing and textile sector among TVET institutes in Kenya to investigate the infrastructural capability and trainer characteristics. The assessment concluded that the resources needed to be upgraded because they were insufficient and out-of-date. Additionally, the study only included graduates from the textile industry school and gave priority to those who were enrolled in other courses. Similar to this, Kibwami (2021) studies asserted that the availability of tools, resources, and equipment for learning ensures the success of any educational system by facilitating high-quality instruction and curriculum implementation.

With a sample of 172 students and 18 teachers, Kigwilu and Akala (2017) employed a mixed research design technique to examine Catholic-sponsored community colleges in

Nairobi. Although there were workshops, equipment, lecture halls, laboratories, and raw materials accessible, the investigation revealed that they were not being used to their full potential. This made it difficult for those institutions to effectively teach and learn. According to the study's findings, the following conclusions were made: The majority of research concluded that learning resources were insufficient and those that were available were being underused. This made it more difficult for kids to learn new things and develop new skills. However, the majority of studies did not show how the learning resources affected the graduates' ability to find employment (Kigwilu & Akala, 2017).

In Butula Sub-county, Busia County, Kenya, Ongulu and Ibrahim (2021) conducted a study to examine how adequate teaching and learning resources impact students' enrollment in TVET institutions. The study focused on principals selected through a census, tutors using stratified proportionate random sampling, and students sampled systematically from technical institutions in Butula sub-county. Employing a case study methodology with a descriptive design, the research found that students' decisions to enroll in TVET institutions were influenced by the availability and suitability of training resources. The study utilized questionnaires and interviews as research instruments. Since the study's focus was on TVET institutions in the Butula sub-county, which is comparable to the consequently, when gathering information from the respondents, the proposed study will use questionnaires and interviews to collect data. According to Muchira et al. (2023), Muriuki & Dominic (2022), and Chepkoech (2021), the training facilities and equipment in TVET institutions are insufficient, antiquated, and cannot be compared to those in businesses where graduates are likely to find employment after graduation.

### **2.5.1 Tools and Equipment**

When appropriate workshop facilities are available, students can engage in practice and demonstrations that support the continuous skill-building that employers want. This enhances their learning experience. Currently, a significant concern among TVET instructors is the inadequate condition of workshop tools and equipment in Nigerian TVET institutions (Okolie et al., 2019). According to Umar and Ma'aji (2020), the majority of TVET institutions in Nigeria are compelled to perform below expectations since the facilities needed in the workshops for efficient skill development are purportedly unavailable, poorly managed, or completely neglected. Consequently, there is a requirement to give enough machines, tools, and workshop supplies to carry out TVE activities in Nigeria effectively.

Mbata (2019) claims that a number of workshop tools and equipment were of poor quality and required difficult maintenance in order to become operational again. Audu et al. (2013) argue that the absence of workshop tools and equipment poses challenges for students to receive training that meets the standards required for employment in industries or related organizations. The technical teacher is limited in his use of the demonstration method of instruction without operatable workshop tools and equipment. Technical vocational education (TVE) has a theoretical cap; if teaching and learning go beyond that cap, skill acquisition is hindered and TVE turns into "theoretical education." Therefore, Ayonmike & Okeke (2017) lamented that graduates of TVET programs were being rejected by businesses due to receiving inadequate training in schools. This insufficient education implied that TVET graduates lacked practical experience, thereby failing to meet market

expectations. Thus, the lack of appropriate and functional training facilities, including workshop tools and equipment, is the main barrier to TVE development in Nigeria.

Musyimi (2021) investigated the impact of modern teaching and learning equipment on the quality of vocational education and employment rates in Kenyan TVET institutions. Using a cross-sectional survey design with proportional stratified random sampling, data was collected from 172 trainees across three TVET institutions equipped with modern facilities. Quantitative data from survey questionnaires were analyzed using descriptive statistics, while qualitative insights from open-ended questions were interpreted through theories of globalization and vocationalism. The study found that the introduction of modern equipment improved TVET classrooms, aligning them better with industrial standards and enhancing the development of crucial skills through high-quality training. This improvement facilitated greater employment opportunities for graduates (Musyimi, 2021). Furthermore, it fostered closer collaboration with industries, enabling effective industrial attachments that provided trainees with practical experience in real work environments (Musyimi, 2021). In conclusion, the presence of modern teaching and learning equipment positively transformed the perception of TVET institutions, elevating program quality and bolstering trainees' confidence in acquiring skills essential for employability (Musyimi, 2021).

### **2.5.2 Technical Support Staff**

In TVET institutions, learning resources include the physical spaces, furnishings, and apparatus that, when adequately made available to the instructors, aid students in developing the necessary abilities (Abdullahi & Yusoff, 2017). These resources, which improve learning, can include factories, equipment, computer labs, lab apparatus, hospitals,

equipped lecture halls, athletic grounds, and cafeterias (Gachunga et al., 2020; Paryono, 2017). Vocational education used to take the form of units of further education that included lecture rooms and training sessions inside of businesses. Currently, self-directed learning in regard to equivalent information and skills delivered in response to industry requirements is the focus of vocational education (Asplund & Kilbrink, 2018). Studies were conducted in Malaysia and Indonesia to comprehend the training techniques employed by trainers during the COVID-19 outbreak. The majority of trainers in TVET colleges used ICT technologies to move students from traditional classrooms to online ones. To evaluate the learning resources available to TVET trainers and trainees, a survey employing a questionnaire was carried out. The difference in teaching practices during the epidemic between Malaysia and Indonesia was examined using descriptive data analysis and an inferential statistics t-test. The study's findings showed that lecturers in the two nations favored the use of technology in the classroom, which trainees embraced because it encouraged online learning and hence promoted flexibility (Muktiarni et al., 2021).

The preparation of graduates for employment in a variety of economic areas through TVET skill training is widely recognized. In order to compete in a range of marketplaces with relevant and suitable technology, TVET institutes allow enterprises to train and receive potential people for production in a variety of industries. The proposal in studies to improve TVET infrastructure is to promote adequate training and thus improve the employability of graduates. Studies on the equipment of TVET institutions suggest a lack of technical abilities to run industry machines.

In order to determine trainer perception, obstacles, and mitigations in delivering needed employability skills in a changing sector, Muriuki and Dominic (2022) performed desktop

research using survey methods. The study results would advise the researcher on the relevant and irrelevant TVET programs that affect or impact graduates' employability. The research findings aimed to solve the shortcomings found in TVET training programs.

### **2.5.3 Information Communication Technology (ICT)**

Utilizing technology is essential for demonstrating employability abilities in the increasingly industrialized and globalized world. TVET graduates need digital skills in order to work with new technologies and the continuously evolving technology (Omotayo & Collen, 2023). The use of ICT and e-learning approaches can result in innovative training programs, more access to learning opportunities, and high-quality training (Nathaniel, 2020). Incorporating ICT in TVET institutions calls for a curriculum that has digital content, accessibility to electricity, internet connectivity, trainers digital skills, adequate computers, pedagogical culture changes and budget provision for operational and maintenance costs (ILO,2021). Investment in technology in TVET sector will enable Africa to catch up with developed countries (Afeti, 2017). TVET institutes in China employ technology in their training programs to address the need for skilled labor needed in the manufacturing industries. Because of this, it has been simpler for TVET graduates to get work following graduation; 90% of them do so within six months of graduation (Nathaniel, 2020).

Graduates who can design, monitor, and set up computer and device networks are in great demand as society's need for connectivity rises in the digital era. The Open Networking Lab is a brand-new initiative that the traditional classroom teaching approach is attempting to catch up with in the UK. By incorporating a web-based simulation package into learning resources, the open networking lab introduces networking skills without the requirement



for hardware. This enables trainers to conduct training events in which trainees gain industry relevant skills (Mikroyannidis, 2018).

Technical and vocational education is utilized in Africa to train individuals for professions as technicians, craftsmen, and technologists in a range of sectors. They are qualified to work in the public and private sectors of the economy as a result of their training. Ndomi (2005) asserts that both sectors require the assistance of knowledgeable personnel who are able to use and maintain the cutting-edge machinery and instruments at their disposal. There is a need for high-quality TVET and training to produce graduates who can function well in their chosen profession without the need for pre-employment training. Preparing students for effective employment in the labor market is TVET's primary objective (Kintu & Ferej, 2019). This requirement can be satisfied by a curriculum that is thorough and up-to-date, as well as by a workshop that is well-equipped with the necessary training resources and digital infrastructure. However, school workshops give students the chance to receive hands-on training in their technical trades, which help them develop the skills necessary for the future growth of the major economic sectors and the provision of essential services like electricity, roads, and machinery, among others.

In Africa, as technology is changing rapidly, the digital skill gap is widening. Investment on digital infrastructure is minimal. The quality of graduates produced by TVET institutions is impacted by inconsistent energy, limited computers, and poor internet connectivity, which cause trainees to acquire minimal digital skills.

The Republic of Zambia has been running and creating Vocational Education and Training Institutions (VETI) in an effort to reduce youth unemployment. Research on how well-

suited and adequate an institution's teaching and learning materials are for trainees in relation to the industrial attachment those students are sent on. The responses were randomly selected college deans and professors from various VETI. The findings demonstrated that TVET institutions faced a variety of difficulties, such as a lack of contemporary workshop facilities and a lack of reading materials. The study suggested creating an environment that is conducive to learning so that graduates may pick up the necessary technical skills for the market (Mulenga & Chileshe, 2020).

Maingi (2019) found that the majority of the training tools used at TVETs aren't technologically compatible with tools used in businesses and other organizations. Compared to the equipment utilized in businesses and industries, the training supplies are subpar. The current state of training technology is obsolete and are rarely used in the industry thus making taught abilities less relevant to market skill requirements (Muriuki & Dominic, 2022). It is imperative to upgrade equipment and provide appropriate facilities in order to guarantee that TVET graduates acquire skills that are relevant to the skill requirements of industries and commercial organizations.

TVET in Kenya and by extension Meru County face challenges in adopting digital technology and online learning since TVETs impart practical skills through hands on learning which a traditional way of training is. Newer technologies like Augmented Technology and Virtual Reality should be embraced as alternative to the traditional ways of training. Other technologies like 3D printing, artificial intelligence, drone technology, robotics, nanotechnology and renewable energy technology are being mainstreamed at the work place thus replacing old jobs and creating new ones. Having these technologies remains a challenge in TVET institutions (World Bank, 2019; OECD, 2018). Technology-

related issues that most TVETs face include poor internet access, expensive internet plans, and outages in power supplies, and low ICT knowledge, all of which have a negative impact on trainer and trainee involvement (TVETA, 2020). The study by Chepkoech (2021) there was a challenge of ICT laboratories in the TVET institutions where one ICT lab served over 500 trainees.

#### **2.5.4 Physical Infrastructure**

For any form of TVET program to be implemented successfully, adequate physical infrastructure is crucial. TVET institutions make use of the institution's physical resources, including classrooms, labs, power and water supply, libraries, workshops, auditoriums, and leisure areas. Availability of physical infrastructure enhances academic performance. According to Ogundu et al. (2019), the problem-solving and critical thinking skills that may be fostered with the use of practical tools in the workshop are what Africa, and specifically Nigeria, need today. According to Umar and Ma'aji (2020), the majority of TVET institutions in Nigeria are compelled to perform below expectations since the facilities needed in the workshops for efficient skill development are purportedly unavailable, poorly managed, or completely neglected. Consequently, there is a requirement to give enough machines, tools, and workshop supplies to carry out TVE activities in Nigeria effectively.

In line with the aforementioned, Akeke and Eyo (2018) found that due to a lack of sufficient tools and equipment, students were forced to complete practice activities in groups. Also discovered was how infrequently functional the few pieces of equipment and tools were. They also pointed out that a lack of financing is often mentioned as a barrier to TVE programs being implemented effectively in Nigeria, since this has left the schools'

workshop lacking in the materials and equipment required to carry out practical work in an efficient manner.

According to Maingi's (2019) research, most TVETs in Kenya run on workshop space and little in the way of instructional materials. The absence of training facilities compromises the application of taught skills to market skill needs in industries and commercial organizations. The quality assurance manual in Kenya states the technical and training institution should have adequate offices, classrooms, laboratories, sanitation facilities, utilities, storage space, workshops and library space depending on the programs being offered.

## **2.6 Training Curriculum of TVET Institutions**

Contextually, the term "curriculum" refers to the subject matter covered in courses as well as the instructional strategies, learning opportunities, and evaluation techniques employed by TVET institutions. In this study, Training Curriculum refer to course content, occupational standards, practical learning, extra curriculum activities and generally courses design and effectiveness in producing an employable graduate. A good curriculum helps trainees to learn how to cope with challenges and prepares them for long life learning (Muriuki & Dominic, 2022). TVET curricula has not been relevant to the labor market leading to skill mismatch causing the employers to retrain the graduates (Muchira, et al. 2023; Republic of Kenya, 2022). Though personal attributes are becoming significant the attribute of industry linked curriculum is not emphasized in TVET institutions. Curriculum is not frequently reviewed and there are complains of those involved in the review especially in many developing countries including Kenya. To overcome this, employers

need to be actively involved in curriculum development. According to Brewer and Comyn (2015), curriculum should be reviewed and up scaled after every five year and the industry should be involved. Numerous studies show that in order to improve graduates' employability, soft skills as well as personal attributes must be incorporated to the curriculum. There is inadequate research on how personal attributes can be incorporated in the curriculum.

### **2.6.1 Curriculum Development**

According to Ayonmike (2014), a curriculum is a plan that outlines the primary objectives and goals that must be achieved at a given institution. The plan's stated goal of producing graduates from a TVET learning institution with employability skills is supposed to be accomplished via the curriculum, which is viewed as a compound that encompasses the trainee, trainer, teaching, and learning approaches. A well-developed curriculum should help the trainee learn how to handle challenges, prepare them for long life learning as well as how to navigate from one job to another (Muriuki & Dominic, 2022). The learner's acquisition of knowledge, desired skills and other goals are the emphasis of TVET program which should be aligned to the industry demand. TVET institutions provide possibilities for trainees to obtain employable skills through their courses and learning experiences, hence advancing the socioeconomic development of a country (Muchira et al., 2023).

A curriculum created for industrial education needs to satisfy two basic requirements: the context and educational goals, which must be produced in a logical order, with the context differing according to the trainees' demands in various programs. The learning requirements of novices, experienced learners, and experts form the foundation of the TVET program. An emphasis on experience, in-depth information, functional knowledge,

contextual knowledge, and the orientation of what the occupation is all about is made possible by occupational working knowledge and result orientation (George & Casey, 2020).

The curriculum indicators for TVET institutions are based on the market needs and competences required for the labor market, as well as student learning assessment, which is represented in the performance exams given in class. The design of the TVET curriculum is also influenced by the employment objectives of TVET graduates, who typically seek out formal work or self-employment. Additionally, interactions between graduates and employers in their particular fields of concentration continue to serve as a guide for what should be covered in the curriculum (Mohammad et al., 2021).

Research shows graduates in the US, UK, and Australia lack general abilities, which are highly valued in the industry. In essence, the TVET curriculum serves as a real tool for advancing technology and the economy. TVET is generally designed to meet the social and economic demands of youth who want to advance their career skills and maintain performance expectations at work (Korir, 2017). As a result, there is a consensus that these abilities should be taught in the curriculum. It has been determined that conventional seminar and lecture methodologies are ineffective at promoting graduate employability (Joo, 2018). Graduates need usable skills in the rapidly evolving job market, claims (Kenayathulla, 2021). They suggested national curriculum and qualification standards of the subject matter be revised by developers.

The TVET system in China is based on demand. While highly relevant programs that are relevant to the sector are produced in partnership with the industry, less relevant programs

with poor employment rates are eliminated or adjusted (Nathaniel, 2020). The industry takes an active role in creating the curriculum and establishing standards that result in the development of skilled trainees with knowledge, abilities, and attitudes that are applicable to the workforce. The curriculum integrates work and learning through a college-based practical approach that includes industry-based practical training.

According to Misni et al. (2020), there is a shortage of talent in Asia as well as a discrepancy between the demand for workers and the labor supply. The study created a curriculum design model that considered the impact of the program's vision, methodology, delivery, and evaluation on employability. The study used a sample size of 299 working learners to learn about graduates' perspectives. Version 3 of Smart PLS was used to analyze the data. To balance the theoretical and practical methods to teaching, the study proposed adjusting the curriculum's design. Aboagye and Puoza (2021) evaluated the issues affecting graduates' employability in Ghana. Random stratified sampling was employed with purpose. Lack of practical knowledge was discovered to be a problem because of the erroneous teaching strategies and curriculum. The report suggested changing the curriculum to provide graduates more useful skills. Additional industrial exposure and internships were suggested as a factor crucial to graduate employment.

Personal competences should be part of the curriculum for students completing project management courses, according to Siddique et al. (2022). They said that trainees lacked interpersonal and managerial abilities. The current curriculum was lacking in soft skills like teamwork, creativity, critical thinking, and communication. Another study found a significant disconnects between the competences learned and what was taught in technical institutions. While many other courses are offered in some TVET colleges, the project

management course was the focus of this study. They suggested adding personal competencies to the course content. Knowing which personal competencies to include and how to apply them to the curriculum are critical if personal competencies must be included in the curriculum.

Varghese and Khare (2021) contend that TVET institutions must adapt to the knowledge-based economy's dynamic business environment. For graduates to be globally competitive, curricula must be rigorous and updated frequently. This is possible if TVET stakeholders, such as trainers, governments, and business leaders, work together to modify curricula and create regulations that support teamwork. Many countries keep developing and changing the education systems which include the curriculum. New policies are developed to meet the changing industry demands but many times failure arises at the implementation level. Trainers are the main stakeholders in curriculum implementation. It gets difficult to implement when they are not involved in the curriculum's creation. The insufficiency and unavailability of educational resources impede the successful execution of the program.

For Ahmad and Shah's (2017) study on the employability of graduates of vocational education programs, 141 teachers in Pakistan contributed data. The primary components of employability were found to be policy skills training, relevant experience, and course mismatch with industry needs, according to the factor analysis approach used to examine the data. The students themselves, who were being prepared for the workforce, were not included; only teachers were. Component and factor analysis are quantitative measures, hence a mixed-method study including instructors and students is required. In a similar vein, the study promoted curriculum revisions that prioritize applied knowledge and hands-on training. The curriculum must be related to the labor market in order to prepare students



for entering the workforce, and learning outcomes should be established based on occupational standards in order to improve students' skill development. The majority of research found a dearth of theory-to-practice connections in TVET institute courses. In order to guarantee quality, the learning environment also needed to be changed. It suggested use government funding to decrease gender gaps and boost enrollment.

A study by Walter et al. (2020) noted an increase in access to TVET with continuing gender disparity in both gender access and competences of male and female trainees. According to SDG 4, educating both males and females improves their social economic status and increases opportunities and other benefits such as increased earning, reduction of crime, delayed girl child marriages and better life outcomes. The study was done in 182 TVET institutions in 9 counties in Kenya targeting youth of between 15-25 years. The results revealed gender disparities to TVET access, enrolment, skills and competencies acquisition that favored the male gender. The trainer response rate in the study showed high disparity as male trainers were 61% while 39% were female. The study concluded engendering in recruitment in terms of TVET branding, training methods, timing and course duration for both male and female trainees. The report suggested that the Ministry of Education create guidelines and provide funding of females to reduce gender inequality. It also recommended review of pedagogy from male centric to one that is more inclusive and gender sensitive.

In Kenya, Kigwilu et al. (2016) conducted a study examining challenges in implementing artisan and craft courses at Catholic-sponsored community colleges in Nairobi. The study employed a mixed methods design, combining a cross-sectional survey for quantitative data gathering and a phenomenological approach for qualitative data collection. The target

population consisted of 331 students, 25 teachers, and 4 directors. The respondent sample comprised 172 students, 18 teachers, and 4 directors, with data collected through questionnaires and interviews. Quantitative analysis was descriptive, while qualitative data was summarized narratively. Insufficient resources, a shortage of practical materials, negative student attitudes, and outdated instructional methods were identified as obstacles that impeded the successful implementation of artisan and craft courses (Kigwilu et al., 2016). The study recommended continuous monitoring, hiring qualified teachers, stakeholder networking and collaboration, and increased funding (Kigwilu et al., 2016). As this research focused on private community colleges, further mixed methods research is needed investigating public TVET institutions, necessitating this current study.

Muchira et al. (2023) conducted a study to explore the relevance of Technical and Vocational Education and Training (TVET) curricula to the workforce. The study revealed diverse approaches in covering technical and soft skills. It employed a mixed-method research approach for data collection and analysis, utilizing a cross-sectional research design. The target population included 3452 trainees, 347 trainers, 171 Principals, 14 focus groups and 8 Key informants. The results of the study included; TVET institutions had inadequate resources, lacked modern tools and equipment, theoretical training which limited skill acquisition which affects employability. The study recommended TVET institution partnership with the industry to increase skill acquisition and youth employability.

### **2.6.2 Instructional Methods**

Hiring qualified, trained, and skilled workers is essential to an organization's enhanced profitability and productivity in the labor market. Both rich and developing nations are

witnessing this tendency. As a result, worldwide investments in higher education are rising. On the other hand, Pakistani youngsters who graduate from vocational and technical institutes face a high rate of unemployment. According to Ansari and Wu (2013), graduates exhibit deficiencies in their vocational knowledge, mastery of job-related ability, and learning potential and skills.

Educational institutions are evaluated based on the employability of their graduates, which can be influenced by various factors including job prospects, educational opportunities, learning experiences, and personal attributes. Comprehension levels, general abilities, and exposure all impact employability (Dacre Pool & Qualter, 2013). Research indicates employment is affected by education level, institution type, study mode and courses, graduate location and mobility, social class, and communication skills. Additionally, performance, gender, educational attainment, communication abilities, and work experience may influence hiring for both job seekers and employers (El Mansour & Dean, 2016). A study on Pakistani vocational graduates identified six factors affecting their employability: education-market mismatch, relevant experience, job creation, policy, and skill development. The findings confirmed previous research that Pakistani graduates lack civic awareness and employment-related skills (Dean, 2007; Naseer, 2012). Prior studies in Pakistan noted the educational process is characterized by conventional, passive instruction lacking critical analysis and application to experiences (Dean, 2007). This study's findings can inform reforms to Pakistan's vocational education curriculum, providing an empirical basis for policymakers, administrators, and researchers to understand key influencers of vocational graduate employability and prepare students for the competitive job market.

A study conducted in Kenya by Nyangweso et al. (2022) discovered that student skill growth in technical training institutes was influenced by teaching approaches. The study employed mixed method designs with convergent parallel designs, aimed at lecturers, students, and principals. Questionnaires were administered to students and lecturers while interview guides were administered to principals. Using Cronbach alpha, the instruments' dependability was evaluated. A cronbach alpha of 0.81, which was higher than 0.70, was obtained. The convergent parallel mixed technique was used to examine the data. Data, both quantitative and qualitative, were gathered simultaneously, examined independently, contrasted, and then interpreted. Chi square was used to test the hypothesis. It was discovered that the lecture approach was the most effective means of instruction, and that TTIs were less useful, which added to Kenya's skill gap. The instructors concurred that teaching strategies affected the development of skills. The professors' expertise was revealed when students expressed dissatisfaction with the way they were being taught. The study recommended review of TTI teacher training process. This current study has used convergent parallel mixed method designs and has borrowed a lot from it.

Descriptive surveys were utilized in a study conducted in Western Kenya by Miyawa et al. (2023) to determine the impact of trainer pedagogical competencies on students' academic achievement in diploma-set courses. A combination of qualitative and quantitative data was gathered, with trainers receiving surveys and principals receiving interview guides. The research focused on three national polytechnics, 150 trainers, and three principals. Descriptive statistics were used to analyze quantitative data. The study found that trainers effectively trained trainees using a variety of instructional approaches; 69.7% of respondents said they used lecture methods, 93% agreed they used demonstration methods,

78.8% agreed they used project methods, 84.9% experimented outside of the classroom, 42.5% agreed they used trainer-centered methods, and 84.9% agreed they used student-centered methods. By use of various instructional suitable for the trainees, the trainers demonstrated their knowledge and adaptability. Nonetheless, research indicates that the majority of TVET instruction prioritizes academic and theoretical knowledge above practical learning in order to pass exams (Guardia et al., 2021; Hardin-Ramanan et al., 2020; Igwe et al., 2020; Lim et al., 2016; Su & Zhang, 2015; Teng et al., 2019). It is believed that using a variety of teaching strategies enhanced trainees' academic achievement.

### **2.6.3 Subject Content**

Subject content is the area of learning and the skill or knowledge within those areas in a curriculum program. It a subject studied in order to acquire knowledge and achieve competence in a skill. Teane (2021) conducted research on how the courses offered at TVET colleges in South Africa match with the needs of the labor market. Data were gathered from seven lecturers and seven students of an electrical engineering course utilizing the snowball sampling technique for the qualitative research design. Although the study stressed the significance of technical expertise for employment outcomes, the sample size might be too small to draw generalizations about the community. The results showed that written examinations were insufficient to evaluate the acquired technical knowledge, and they suggested the use of a dual assessment method that combines written and practical evaluations. However, the study only addressed assessment methods and did not consider other curriculum elements like content or teaching approaches.

A study by Ramnund-Mansingh and Reddy (2021) in South Africa opined that graduate skills need to support industrial revolution. Higher education in South Africa is unlike that of any other nation because of its distinct political environment and structural history. Following the 2004 HEI reform, several complications emerged. In a 2017 study, Geressu evaluated the effect of competency training on the employability of 89 graduates, 162 teachers, and 123 students majoring in automotive engineering across six TVET colleges. The study's dependent variable was the employability of graduate students, whereas the independent variable was CBC. Even though the criteria for employment were explicitly established, their study may have overlooked additional explanatory factors for employability. According to the study, competency-based curriculum training needs to be improved to meet industry demands. To guarantee that graduates acquire employable skills, consultations with stakeholders are also required when establishing the learning objectives, teaching strategies, and course material.

According to Okolie et al. (2020), TVET institutions in Nigeria have not succeeded in creating skills that will adequately prepare graduates for the workforce. While many researches concentrated on skill development, there were relatively few studies that concentrated particularly on aspects related to the curriculum and graduates' employability.

In a study of Nigerian university finalist students, it was discovered that instructors lacked practical teaching expertise and that a heavy emphasis was placed on theory rather than practice. Although 361 were found in Teng et al. (2019) study in China and Malaysia, which focused on universities there, goldsmiths emphasized the importance of include soft skills into the curriculum. Soft skills have been found to be essential for graduates to be equipped for the workforce. It's not the aim of this study, but considering that it was

conducted in highly developed countries, it would be interesting to find out if employers in a developing country like Kenya view a particular set of soft skills as essential. This study aimed to determine whether soft skills influence the association between curriculum elements and employability.

Purposive sampling and a questionnaire were used in Pitan and Muller's (2021) study in South Africa to evaluate how 402 TVET final-year students improved employable abilities. According to the report, the curriculum has the biggest impact on how employable pupils are. The employability of graduates was not shown to be significantly impacted by other criteria such as work prospects, practical problem-solving or extracurricular activities. They concurred with earlier research that theory and practice must be linked in order to generate graduates who are prepared for the workforce. To stratify the students from various departments and subsequently collect data from them, a stratified random sample method may be perfect. In a similar vein, Mabunda and Frick (2020) found out that internships and apprenticeships raise the likelihood of employment for the trainee.

The majority of firms' screen apprentice trainees based on their talents and skills, allowing for the selection and hiring of desirable candidates. Graduates with the necessary skills, however, frequently lack real-world experience. Because they do not educate graduates for greater career options, most curricula are regarded as absolute.

#### **2.6.4 Practical**

The curriculum must be created in a way that gives students more hands-on experience through apprenticeship and internship programs (Sumanasiri, 2015). A curriculum can be designed so that learners are continuously exposed to practical learning in the business to

improve skills instead of a summative affiliation with the industry experience (Hossain et al., 2020; Kovacs & Zarandne, 2022; Nusrat & Sultana, 2019). This will eliminate the myth that graduates from the national curriculum are of low quality and lack practical skills.

In order to lower young unemployment, Vocational Education and Training Institutions have been running and being established by the Republic of Zambia (VETI). Research on how well-suited and adequate an institution's teaching and learning materials are for trainees in relation to the industrial attachment those students are sent on. College deans and professors from a variety of VETIs were randomly chosen to provide replies. The findings demonstrated that TVET institutions faced a variety of difficulties, such as a lack of contemporary workshop facilities and a lack of reading materials. The study suggested creating an environment that is conducive to learning so that graduates may pick up the necessary technical skills for the market (Mulenga & Chileshe, 2020).

This section of the curriculum can only be applied in environments with appropriate and functional workshop facilities, machinery, tools, and equipment. When appropriate workshop facilities are available, students can participate in practice sessions and demonstrations that support their continuous skill-building, which enhances their learning. However, one of the main points of contention among TVET instructors nowadays is the poor state of workshop tools and equipment in TVET institutions in Nigeria (Okolie et al., 2019). According to Umar and Ma'aji (2020), the majority of TVET institutions in Nigeria are compelled to perform below expectations since the facilities needed in the workshops for efficient skill development are purportedly unavailable, poorly managed, or completely neglected. Consequently, there is a requirement to give enough machines, tools, and workshop supplies to carry out TVE activities and practicals in Nigeria effectively.



Munishi (2016) found that graduates from Tanzania lacked soft skills as a result of inadequate curricula that did not adequately equip them. According to the study (Fadhil et al., 2021; Lozovoy et al., 2019; Ngcwangu, 2015; Podolskij, 2012), employing suitable teaching methodologies and incorporating soft skills like teamwork, communication, leadership, and critical thinking are recommended. Adams (2019) study on the factors affecting TVET graduates' employability in South Africa further blamed curricular inconsistencies and a lack of resources for graduates' lack of workplace preparedness. The most crucial element in establishing graduates' preparedness for employment was work-based training, which had not been updated in a long time.

A study conducted in East Africa examined perceptions of graduate employability among the academic community, employers, and civil servants. It focused on the disparity between skills acquired in higher education and those sought after by employers (Guàrdia et al., 2021). The mixed-methods research involved 89 respondents from Kenya (18), Tanzania (44), Uganda (25), and 2 unspecified origins. A survey explored whether graduates possessed the right employable skills, while qualitative methods provided deeper understanding. Convenience sampling was used to administer a four-point Likert scale questionnaire on employability skills during Open Day events at the University of Tanzania, Makerere University, and Maseno University. Data analysis involved principal component analysis.

According to the findings, employability skills were inadequately cultivated throughout students' academic years, and the skills acquired did not align with industry demands (Guàrdia et al., 2021). Outdated programs with curricula misaligned to the dynamic labor market and unqualified staff were cited as causes of the skills gap. These findings align

with other researchers identifying institutional factors impacting employable skills development in higher education institutions, including TVETs (Fox & Gandhi, 2021; Bhorat et al., 2017; Leopold et al., 2017; McCowan, 2015).

In Kenya, students cited irrelevant curricula as a major reason behind graduates' employability skills deficiency (Njeg'ere & Ji, 2017). Kalufya and Mwakajinga (2016) advocated linking curricula with employer demands and integrating employability into teaching and learning to ensure students acquire these skills. This current study will also utilize a mixed-methods approach to data collection and analysis. The review concludes that the studies conducted thoroughly analyzed curriculum elements and employability.

It is evident that the curricula utilized in TVET institutions are out-of-date and must be integrated with business requirements (Guàrdia et al., 2021). Inadequate and unavailable materials for carrying out practical sessions during training are lacking in TVET institutions thus denying the trainees experiential (Kigwilu et al., 2016). Additionally, curricula lack soft skills, practical abilities, and personal competences, leaving graduates unprepared for the workforce (Mtawa et al., 2021). According to the study by Muriuki and Dominic (2022), there needs to be a paradigm shift from exam-oriented training to skill-oriented training with TVET institutions sticking to their core mandate of instilling technical skills and knowledge required by the trainees to solve problems and communicate effectively. Theory and practice must be connected, thus those involved in TVET must work with business firms to form advantageous alliances that boost graduate employability (Ochieng & Ngware, 2021). There is scanty of data that put these variables together specifically in Kenya and therefore there is need for this study.

## **2.7 Industrial Engagement**

Technical vocational training has the ability to develop human capital across the countries. It also supports industries by providing skilled steady workforce supply thus boosting economic development. According to African Development Bank the constraint to development of employability skills include; mismatch in skills, poor quality and lack of relevant skills to industry needs which lead to high levels of unemployment among graduates (AfDB, 2022). Main objective of TVET training which aims at reducing the rate of unemployment. This runs counter to employers, who have consistently voiced their displeasure with the majority of TVET graduates' low employability skills due to the industry's rapid technological changes and TVET institutions' reluctance to instill these skills in aspiring trainees (Muriuki & Dominic, 2022). Employability skill gap is a major problem facing the employer, employee and those seeking employment (Meta, 2022). In a market economy that is becoming more industrialized, industrial engagements involve ties between TVET institutions and the labor market. The relationships are positive and mutually beneficial, with students gaining from TVET institutions in terms of employment opportunities, skill development, and economic growth. New talent, innovations, and highly skilled workers in technical domains like computer science, engineering, and other related fields benefit the workforce (Joo, 2018).

The industrial engagements take many different forms, such as field excursions, apprenticeship to the partner organizations; training and educational activities through the offer of internships, which give students some job experience and help in transitioning to the world of work (Latif, 2022). Globally, the enhancement of high-quality and relevant skills is achieved through active industrial engagement, primarily overseen by chambers of

commerce and industry within individual countries. This educational and training vision is aligned with Sustainable Development Goal (SDG) 4, which seeks to achieve inclusive, equitable, and quality education for all, and promote lifelong learning opportunities. Encouraging significant engagement of employers and industries in Technical and Vocational Education and Training (TVET) requires systematic development of TVET trainers and an adaptive TVET system that integrates technological advancements and appropriate technology for effective technical education and training. Additionally, industry collaboration in curriculum development and provision of access to training equipment for TVET institutions is crucial to ensure trainees have access to up-to-date resources (Republic of Kenya, 2022).

In the UK, TVET system is employer centered as employers play a key role in design, delivery and assessment of TVETs which ensures relevance, flexibility and quality. The industry contributes tools and equipment, expertise, training venues and the training outcomes are measured not measured against passing exams but against employee-based outcomes. Employers willingly engage and work with the trainers to ensure the skills being taught are industry driven for competitive advantage. They participate in apprenticeship and internship programs and host work placements for full time learners. They advise on curriculum development and trainer development programs (British Council, 2022). In Germany TVET trainees are exposed to dual vocational training leading to over 77% rate of transfer to employment (Federal Ministry of Education and Research 2021). Though Germany advocates for Dual vocation system, a study by Gessler and Michael (2017) companies rarely collaborates with the vocational institutions with 72.4% not coordinating with the institutions and 93% not cooperating with the institutions.

A study by Nathaniel (2020) assessed the role of TVET institutions in driving global economic development, as economies requiring sustainable growth must prioritize TVET. The research examined patterns of TVET's impact across Africa, Asia, and Europe since its inception using a case study approach. Secondary data formed the main data source, collected from articles, newspapers, published and unpublished theses. The qualitative study utilized content analysis methods. The study recommended increased employer involvement in TVET through closer national and institutional linkages, participation in policy development and implementation, as well as integrating work placements into training curricula (Nathaniel, 2020). In China specifically, TVET institutions collaborate closely with industries, embedding industry-school partnership mechanisms within the TVET system (Nathaniel, 2020). By highlighting TVET's role in economic development globally and advocating stronger industry ties, this research underscores the importance of effective, industry-engaged TVET programs for sustainable economic growth.

Africa needs a skilled labor force thus shortage of high and low level technical and vocational skills is a threat for sustained economic growth, transformation and industrialization (AfDB, 2020b). Approximately 46 % of employed youth in Africa believe there is a mismatch of their skills and their jobs and 21% of the leading employers siting inadequate skilled workers which affects their operations (Mursy et al., 2019). There is a disconnect between the curriculum offered by TVET institutions and the teaching-learning resources and the industry demands which leads to skill mismatch (ACET, 2023). Sometimes the industry is flooded with graduates who have skills not needed by the industry leading to failure to secure employment or settlement on jobs that don't match their skills and competences.

According to Ali et al. (2017), most countries' TVET institutions struggle because their curricula do not integrate theory and practice. Lack of industrial engagements and linkages with vocational colleges hinder graduates' capacity to find employment. Various points of view exist about the value of industrial engagement for graduate employability. Numerous studies have found that exposing students to a real work environment improves their employability and gives them work experience. In other instances of industrial involvement, specialists are hired to train the staff by giving them internships and working on collaborative initiatives that improve their prospects of finding employment (Aboagye & Puoza, 2021; Adeosun et al., 2022; Lozovoy et al., 2019; Teng et al., 2019).

However, the majority of studies support industry involvement, whether through internships, hiring skilled workers as trainers, receiving donations from the industry, or the government's role in fostering collaborations between TVET institutions and industry through various incentives (Aboagye & Puoza, 2021).

While some nations, particularly those in Europe, have had considerable success connecting TVET programs in Kenya and, more importantly, Meru, with the industry, others have had little to no success in this regard. The needs of the labor market and TVET programs are not aligned. The connections between research, industry, and TVET have not been robust, despite a number of pilot projects and policy initiatives to close the gap between industry and TVET in Kenya (TVETA, 2020).

### **2.7.1 Internships and Attachment**

Internships and industrial attachments are critical aspects of skill acquisition for TVET trainees and graduates. Through industrial attachment, trainees have the opportunity to

examine theory though practical, get exposed to opportunities and also get a clear understanding of the industry. According to the trainees, employers and TVET institutions benefit from industrial attachment. Benefits to the trainees include personal growth in areas like resilience, problem-solving abilities, teamwork, and communication. Employers gain from skilled work provided by qualified apprentices. The industry typically has a staffing deficit in certain departments, which can be readily addressed by workers on attachment. TVET institutions bridge the gap between the needs of industry and the graduates they generate by complementing each other in areas where they are weak. Strong ties to the industry assist the institutions as well.

A curriculum that calls for internships and hands-on training after meeting specific learning objectives, improve the trainees' acquisition of practical skills (Bassah, 2022). Oswald-Egg & Renold (2021) assert that because of their high production and low training costs, experienced personnel are more desirable than inexperienced ones. Therefore, internships are essential for expanding job experience and equipping students with employable skills. Muchlemann and Wolter (2020) state that trainees expect to gain practical workplace experience in the industries where they participate in attachments and internships.

Kenya's Vision 2030 strategic plan places significant emphasis on TVET as a driving force behind the economy's need for a sufficient and qualified middle-level workforce (Government of Kenya, 2010). The 2010 Kenyan Constitution further underscores the importance of quality education and training as a fundamental human right and key component of the government's overall development goals (Government of Kenya, 2010).

Vision 2030 underscores the essential connections between education/training and the labor market, the necessity of cultivating entrepreneurial skills and competencies, and the integration of national values through successful public-private partnerships (Government of Kenya, 2013). The OECD (2017) also recommends TVET can supply in-demand business skills, particularly with sufficient employer engagement to ensure curricula align with labor market needs. Given recent substantial investments in the TVET sector reflected in government policies and frameworks, improving the quality and relevance of TVET programs is a key priority for Kenya (OECD, 2017). This necessitates strong education-industry partnerships and demand-driven TVET to produce a skilled workforce for sustainable economic development.

The abilities graduate of TVET programs hold determine their employability in the twenty-first century. Trainers are questioned to assess how trainees fare in terms of practical and theoretical skills, and trainees can be given questionnaires to ascertain the desired skills, attitudes, and traits that students possess before they are integrated into the industry, in order to measure the employability of TVET graduates (Ismail & Mohammed, 2015). Analytical analyses of TVET programs provided by universities help identify additional areas that require attention and reinforcement (Kintu, 2019). The proportion of TVET graduates who continue their education, those who land jobs immediately away, and the remaining graduates who are job-hunting or working for themselves can all be used to gauge the employability of graduates (Khirotdin, 2019).

Studies from throughout the world point to the importance of industrial engagements because they boost student productivity and labor market competitiveness. As a result, it is crucial that training institutions invest in alliances that facilitate on-the-job training (Sibiya



& Nyembezi, 2018). To improve the practical experience, hotels and restaurants in these nations offer small-scale training in housekeeping, bar attendance, welcome, and service (Asian Development Bank, 2022). This strategy is especially excellent for the tourism sector, as trainees work as tour guides while they pick up useful skills, while collaborating with officials from construction companies to provide training, civil engineering students (Varghese & Khare, 2021).

In West Africa, Adeosun et al. (2022) evaluated the impact of training and exposure gained through student work experience on trainees' employability. Using a mixed research approach, the study assessed internship programs in the fourth industrial revolution. The questionnaires received responses from at least 249 trainees, and 45 respondents including 25 industry employers (Key informants) and 20 lecturers were subjected to in-depth interviews. It demonstrates that, depending on the internship location, internship programs increase productivity and broaden knowledge, exposing young people to digitization. While acknowledging that internships increase graduates' employability, the study was carried out in a Nigerian university.

Mwaura et al. (2022) conducted a study to assess the effectiveness of industrial attachments in developing employability skills among trainees in TVET institutions in Nairobi. The research was grounded in skill acquisition theory and employed a mixed methods approach, utilizing a concurrent triangulation design. The study included a target population of 3,940 participants, comprising 3,480 trainees, 174 liaison officers, 261 trainers, and 25 industrial supervisors. The sample included 230 respondents selected through random sampling (180 trainees, 20 trainers) and purposive sampling (20 liaison officers, 10 industrial supervisors). Data was collected via trainee and liaison officer questionnaires, industry

supervisor interviews, and trainer focus groups. Instrument validation involved face/content validity, while reliability was determined using Cronbach's alpha. Quantitative analysis used inferential and descriptive statistics presented in tables, percentages and frequencies, while qualitative data underwent thematic analysis presented narratively.

The study concluded that exposure to industrial attachments influenced the enhancement of employability skills (Mwaura et al., 2022). Recommendations included harmonizing skill exposure levels during attachments and strengthening TVET-industry collaboration to enhance skills exposure (Mwaura et al., 2022). The current study aims to build upon this work by also adopting a mixed methodology with a concurrent triangulation design.

Muthoni et al.'s (2018) study on the impact of industrial attachment on trainers' and trainees' competencies in fostering innovative ideas for industrialization was conducted in Kenya. A cross-sectional descriptive survey research design was used for the investigation. The research tools included; questionnaires administered to 50 trainees and 23 trainers and 13 industrial supervisors. The results were presented and frequencies, tables and percentages. The study identified challenges trainees encounter during industrial attachments including inadequate skills and knowledge to deal with changing industrial needs, expert assessors not seeking knowledge and failure to accommodate alternate conception of the problem. The results of the study indicated industrial attachment establishes linkage with the industry, exposes trainers and trainees to modern equipment, machinery and tools.

Finding internships and attachment possibilities in many countries including Kenya and Meru can be difficult because the businesses are expanding slowly. A study by Otieno and Onyango (2020) indicates most trainees and graduates encounter various challenges such as; getting places for attachments and internships, transport, food and accommodation costs as well as insurance covers hence employers failing to take them in for attachments and internships. In their survey, they found that 59% of the trainee respondents looked for industrial connection, 20% did so through the National Industrial Training Authority (NITA) and liaison offices, and 21% did so through friends and family. The study found that TVET learners benefited from industrial affiliation in a number of ways. These included gaining job experience, getting exposed to the industry, and comprehending workplace experiences, as well as assisting the trainee in putting classroom theory into practice through practical training in the sector. The study recommended TVET institutions to foster partnerships with the industry to aid industrial attachment placements. It is challenging to provide trainees with the opportunity and skills they require due to inadequate internship programs and government regulations, such as tax benefits for small and medium-sized businesses (Huang et al., 2022; Kavishe, 2022; Woodard, 2018).

### **2.7.2 Dual Vocation System**

A dual vocational system combines education and training in two settings: the workplace and an educational institution. In order to effectively prepare trainees for the job market, institutions and industry collaborate to provide technical and vocational education (Shafi et al., 2021). Nusrat and Sultana (2019) in their article coins that 80% of training is done in industries and only 20% of training takes place at school; as a result, trainees are equipped with right skills required by the industry. Therefore, hand on skills gained in the

industry makes the graduates more employable (Nusrat & Sultana, 2019). This enables the trainees to get technical skills, occupational, competences, characteristics and qualities required by the industry thus guaranteeing employment (Latif, 2022). The dual vocational system helps graduates to adapt to the ever-changing economic demands on skills that match the industry (Kenayathulla, 2021). Students can perform industrial work through the dual vocation system, which boosts their confidence and enhances their experiences. Graduate employability is increased by the TVET institutions' and the industry's development of personal traits in addition to topic knowledge and skills (Nurjanah and Ana, 2021; Remington, 2018; Oviawe, 2018).

The Dual Vocational System has been popular in Europe and is praised for creating a trained labor force that has completed both theoretical training in vocational schools and on-the-job training in the industry (Kithinji, 2022). Several European countries, including Germany, Austria, and the Netherlands, have implemented the Dual Vocational System (Erica, 2016; Haslaar, 2020). In Germany, a trainee's time spent learning is divided between two thirds in the workplace and one third in a classroom. TVET system in Germany is funded by the government and the private sector for sustainability (ACET, 2023). Balancing theoretical and practical learning in vocational institutions increases employability of the graduates. The German Dual training system has increased training opportunities, reduced youth unemployment and led to the country's economic growth (TVETA, 2020). During apprenticeships trainees receive salaries thus reducing financial burdens. Their dual vocational training has made Germany to have a high performing economy. While vocational courses endure around two years, apprenticeship programs in

Canada last four years. Apprentices learn eighty percent of the time at industrial work sites and twenty percent of the time in school, where they study theoretical subjects.

East and South-East Asian labor markets were contrasted to those in South Asia in research undertaken in Asia by (Mehrotra, 2016). The results of the study demonstrated that TVET systems in South Asia did not sufficiently address the demands of the labor market. As per the paper, market change necessitates public, private, and combined public and private actions. The business sector would be more accountable for making sure the suggested actions are considered. Studies of this kind help TVET graduates fit in in the job market.

Studies conducted in India show that there is a demand for skilled workers thus much focus has been put on the employability of TVET graduates. The unsuitability between central governments, training institutes and the industry; the study found that there is less clarity on the concept and components of TVET graduates employability based on the elements that promote employability. A frame work as developed based on personal factors and circumstances, external elements and institutional factors which provided a unifying structure to direct and put together agents in the Indian TVET system so as to enhance employability of TVET graduates. The framework which is made up of four parts, each further subdivided into categories: individual variables, personal situations, external influences, and institutional aspects. This framework gives many agents in the Indian VET system a common framework to guide and organize them. Consequently, it contributes to improving graduates' employability in a comprehensive way (Ismail & Mohammed, 2015). The central government, business stakeholders, and TVET colleges performed studies in India to better understand the expected type of TVET graduates that will be available to the market.

The comprehensive study of TVET graduate employability's work-based learning strategy identifies the understanding and relationship between graduates' skill and aptitude development. To accomplish work-based learning, TVET programmes must be changed to permit intern placement in order to increase employability. Employability has received attention in current literature, although there are few studies that connect learning activity to a desired graduation capability (Arshad et al., 2020). China has increased the value placed on skills in its economy in order to support innovation that is fueled by the accelerating pace of technological change and greater global engagement. The needed abilities are those attained through graduate studies and technical-vocational education. In China, the government provides incentives as well as comprehensive and contractual protection for workers, resulting in job stability and professional advancement. TVET graduates must pass exams administered by organizations that certify their knowledge of their fields.

In order for their employees to effectively contribute to economic growth, the majority of employers require a specific set of knowledge, talents, and attitudes, according to Cheng et al. (2022). Trainees must have the ability to work in groups, solve problems, communicate well, and be motivated by them. Training institutions must keep a steady line of communication open with the corporate world in order to foster these skills and provide students with access to internship opportunities. According to Kiruga et al. (2018), the government must establish connections with firms to give apprenticeships and work experience because these connections are crucial for graduate employability. Due to the high expense of employer training and the absence of corporate social responsibility and incentives, they did highlight a lack of government engagement.

### **2.7.3 Collaborations and Partnerships**

Globally, there is a large need for TVET due to the pursuit of technological advancement, industrialization, economic expansion, and rising unemployment rates. There is need to strengthen public-private partnerships to address the rapidly changing world of technology (Nurjanah & Ana, 2021). Collaborations between TVET institutions and the industry prepares trainees for employment through development of employability skills (Muchira et al., 2023). This can be achieved by TVET institutions aligning the curriculum, teaching-learning resources and programs with the market demands which empower trainees in acquisition of skills that are needed by the industry. By bridging the gaps between TVET institutions and the industry, these partnerships and collaborations enhance the development of employability skills and ready graduates for career prospects (Mwaura et al., 2022).

Through collaborations with Asian textile industry associations, trainees are supplied with the skill sets needed by the sector. Other partners provide the training institutes with sewing machines and educational tools in addition to offering the trainees trainer-of-trainer courses (Halim & Binti, 2019; Rajadurai et al., 2018). Additionally, businesses send knowledgeable staff members to share their knowledge, give equipment which increase graduates' production and employability.

In Bangladesh, there is a gap in skill development and employment of TVET graduates in the industrial sector despite the fact that TVET is essential for economic growth. As a result, research has been done to identify supporting policies that would link TVET with the industrial sector. Studies done revealed that TVET institutions and industry collaborate, and that supportive policies are required to provide the desired linkages. Businesses and

TVET institutions collaborate on joint projects and share responsibilities for promoting formal and non-formal TVET in keeping with labor market demands; taking technical advancements into consideration (Siddiky, 2020).

East African examines the views of many stakeholders, including the community, government, employers, and civil employees, regarding the employability abilities of graduates (Guàrdia et al., 2021). The study examined the opinions of academics, employers, and government officials in East Africa regarding the employability abilities of graduates, and the results were addressed in the article. It specifically looked at variables influencing the discrepancy between abilities acquired in higher education (HE) and those that employers are looking for. Focus groups and a survey were employed as components of a mixed-methods strategy.

The regional stakeholders were given the employability skills questionnaire, which was also utilized for group discussion during an open forum. The study found that preparing pupils for the workforce only through education was insufficient. To ensure students' skill development and program success, it is advised that ongoing industry involvement be used. However, this research was done at African universities. To identify issues and recommend solutions for TVET institutes in sub-Saharan countries, more research is necessary. The majority of scholars, such as Ayonmike (2014), Chigbu and Nekhwevha (2022), Mabunda and Frick (2020), and Ochieng and Ngware (2021), assert that a primary factor contributing to young unemployment is the mismatch between graduates' abilities and industry requirements. Thus, improving employability in the SSA region requires a strong focus on skill development (Evans & Santos, 2019; Guàrdia et al., 2021).



According to Kamuhabwa's (2019), study in Tanzania on graduates from TVET institutions, graduates lacked skills as a result of subpar teaching strategies, inadequate facilities and equipment, and subpar educational policies. Even when there were sound educational regulations in place, the implementation of those policies by uninspired teachers prevented trainees from acquiring marketable abilities. But there was no mention of industrial engagement in the study.

As an illustration, the participation of industry participants in Singapore has resulted in the creation of boards with employer representatives and instructors from the sector, as well as donations of equipment and modernized tools to the VET institutes. In collaboration with students and business leaders, confirmations have sparked the creation of technology and breakthroughs. The work experience acquired is crucial for potential future employment. They also mentioned how crucial it is for the government to engage the industry by offering incentives like tax breaks, among others, in order to bring about these collaborations. The planning of the institute's curriculum must involve both partners.

The effect of competency-based curriculum on graduates' employment in Ethiopia was also examined by (Geressu , 2017). A mixed-methods design was used to involve 24 staff members, including business owners, college deans, industry trainers, 162 professors, and 123 students majoring in automotive engineering. The study critically examined the impact of competency-based training on the employability of Ethiopian graduates from technical and vocational colleges. In order to assess the responses, the deliberate sampling strategy included focus groups and interviews. Descriptive and inferential statistics were then utilized to present the results. It was discovered that the TVET institutions failed to successfully impart knowledge and skills to their students. They advised involving

stakeholders in the development of the learning objectives, instructional strategies, and competency-based learning.

The viewpoints of stakeholders on employability in the public and private sectors were examined by (Cheng et al., 2021). The assessment disputed that the employability strategy was solely about converting universities into training facilities and instead stressed the significance of students comprehending the subject matter. Employability is a contentious topic since stakeholders' perspectives might vary depending on institutional disparities and national regulations on employability. However, since they are the end users of TVET products, the industries are crucial in improving the sustainability of TVET institutes, according to Ayonmike (2014). They came to the conclusion that businesses should identify their own areas of need in order to retrain and instruct students in more relevant skills for sustainable development. This is the best method to handle the employability problem.

According to Kenayathulla (2021), due to the industry's rapid changes, students starting school may be taught material that is unrelated to the jobs they will hold in the future. Due to the industrial revolution in fields like genetics, artificial intelligence, 3D printing, biotechnology, robotics, and nanotechnology, dual training is necessary to help people take advantage of the opportunities that will arise in the future as a result of these trends. Through their experience and knowledge of future projections, employers may take the lead in developing curricula to support trainees' global competitiveness. Olojuolawe et al. (2019) claims that curriculum development is necessary to close the skills gap between TVET institutes and industry. This is consistent with a research by Muchira et al. (2023)

that suggested collaborations between TVET institutions and business, as well as matching job market demands with skill sets and competencies.

According to a study by Kithinji (2022) that examined five employer-led dual apprenticeship programs in Mombasa and Nairobi, the dual vocational system of vocational training can provide a long-term solution to Kenya's rising young unemployment rate since it gives trainees skills that are relevant to the labor market. A desk analysis of secondary data and documents was conducted in order to identify dual apprenticeship training programs in Kenya. Five donor-funded apprenticeship programs had secondary data collected using a document analysis guide. The findings confirmed that employers should drive vocational training more so than educational institutions.

Kenya has been embracing dual apprenticeships but its adoption has been very slow. A major concern has been the industry not being involved in curriculum development and trainers not have the pedagogical skills and professional experience to deliver the relevant training. Because of this, it has become more challenging for companies to find competent individuals who can fulfill their demands for high-quality work (Ochieng & Ngware, 2021). Though partnerships and collaboration should create a win-win situation, there are other challenges experienced such as; funding, misunderstandings on mutual benefits, policy issues and bureaucracy. There is no study that has been carried on in Meru County in reference to the dual apprenticeship thus this study will fill that gap.

## **2.8 Personal Attributes of TVET Graduates**

Graduates entering the business world today are facing a number of drawbacks like decreased employment opportunities, rapid technological changes, changes in fields of

knowledge and specialization, personal professional development as well as lifelong learning. Sometimes the industry is flooded with graduates who have skills not needed by the industry leading to failure to secure employment or settlement on jobs that don't match their skills and competences (ACET, 2023). It's increasingly clear that merely possessing technical skills and academic knowledge is insufficient for graduates seeking employment. Today's job market demands that graduates also have personal attributes that facilitate their transition into the workforce. These employability skills, comprising a variety of soft skills and personal attributes, act as a bridge between formal education and the requirements of employment. Many graduates from TVET institutions find it challenging to secure jobs, primarily because they lack these soft skills, which are highly valued by employers (Awodiji & Magodidi, 2023). Personal attributes, while varied and developed over time, complement the technical skills learned at TVET institutions. Indeed, these soft skills and personal qualities are critical, as they are the skills most sought after by employers (ACET, 2023).

A study by Succi and Canovi (2020) found skills like team work, agility, professional ethics, creativity were highly prioritized by employers hence developing such skills enhanced graduate employability. TVETs need to respond to the competence, motivated and adaptable workforce that will drive economic growth and development. Their employability seeks for self-direction which requires personal attributes that employers seek (Ingrid & Melinde, 2012; Bridgstock, 2017). Personal characteristics can influence how graduates enter the labor market. For example, graduates who studied the same course and even received comparable marks may find that their entry time varies (Kirui, 2019).

Skills can be classified as technical or non-technical and pertain to the capacity to carry out activities physically and cognitively. Personal attributes are fundamental skills that prepare trainees for lifelong and work in the global world. Loyalty, commitment, honesty and integrity, dependability, excitement, discipline, personal presentation, common sense, good self-esteem, motivation, adaptability, resilience, and confidence are some of the traits that make a person employable overall. Edmund (2000) defined personal attributes as character traits, aptitude, values and attitude. Through their technical education, learners acquire functional competencies. It is expected of TVET graduates to prepare for the demands of the sector. While soft skills and personal attributes can mystically maintain people in the organization, technical skills can help them land a job that pays well (Adnan & Hasan, 2019). A TVET graduate must not only possess the necessary information but also the skill set to carry out the work task as required in order to get employed. Possession of academic qualifications with specific subject skills does not measure ones true abilities and is not sufficient for job recruitment without softs kills and personal attributes (Oviawe, 2020).

In Malaysian studies evaluating the skill development of vocational students, the SCANS instrument was employed to assess their employability skills. The research discovered a correlation between gender, participation in extracurricular activities, engagement in career development activities, and employment capabilities. In order to identify the factors that most accurately predict students' learning of employability skills, the researchers used step-wise multiple regressions. The study discovered that employability abilities held by TVET graduates were influenced by self-perception, industry training, and career development

participation. By utilizing the data gathering approach from the study done in Malaysia, the suggested research would be informed (Dania et al., 2014).

Job advertisements typically highlight two key components of human capital: skills and personal qualities. Skills are often measurable and directly observable, described as visible competency components (Spencer & Spencer, 1993) as cited in Baum et al. (2009). In contrast, personal qualities include character traits, aptitudes, values, and attitudes, which are more challenging to develop and are also known as visible competency components. Both knowledge and skills can be acquired through training and experience in TVET institutions (Spencer & Spencer, 1993). Furthermore, employability involves the ongoing process of identifying, acquiring, adapting, and enhancing skills, understandings, and personal attributes to improve the likelihood of securing meaningful employment, thereby benefiting the individual, society, and the nation (Yorke, 2011; Oliver, 2015).

Employers and career counselors in the industry often refer to basic personal abilities as "soft skills," but they also mean the social skills that graduates of TVET programs must have in order to perform their assigned jobs in the workplace. In addition to education, soft skills are a critical talent needed for the majority of professional jobs in the sector. Personal attitudes, routines, communication, interpersonal skills, and conduct are all examples of soft skill indicators (Paolini, 2020). In this study, personal attributes that include attitudes, confidence, resilience and alumni participation will be investigated.

### **2.8.1 Attitudes**

The unfavorable perception of TVET trainings needs to be altered. When looking for employment prospects, TVET graduates could feel less fortunate than their university-

educated rivals. TVET has historically been perceived as a haven for academic dropouts. Parents and trainees continue to hold this negative impression (TVETA, 2020). This needs to be addressed by educating the public about the various career routes and opportunities available in TVETs, as well as providing career assistance and counseling in schools (Williams et al., 2018). Potential learners must first receive help and counseling in selecting training programs based on their aptitudes, academic background, career goals, and industry requirements in order to ensure their employability. A positive attitude is a growing attribute in graduate level employment as employers give it a priority far ahead of certification or institution attended (Coballero et al., 2020; Mainga et al., 2022). A positive attitude assists one to work well in a competitive and challenging working environment with balanced psychological and physical well-being. Employers are equally seeking for employees who have a positive attitude. Someone with a positive attitude has both intrinsic and extrinsic motivation that inspires others to work (Yen et al., 2023).

In India, Technical and Vocational Education and Training (TVET) offers prospects for lifelong learning and fosters a positive outlook on life and work in trainees, improving their employability and mitigating the imbalance between the supply and demand of skilled labor. Trainees need the soft skills and personal attributes to get initial employment, career progression as well as getting a new job because employers in the work place demand them (Oviawe, 2020). In the United Kingdom, during the industrial revolution, the international market is inundated with graduates who have good educational knowledge combined with improved work experience (Sulaiman & Ambotang, 2017). Various authors have described soft skills as personal qualities including integrity, a good attitude, being social, being able to communicate clearly and amicably, and having a positive work ethic. The technical

abilities acquired by TVET graduates, who are essential in the labor market, are complemented with soft skills.

By incorporating soft skills and personal attributes into technical training programs, graduates will be successful in the job market as indicated by their performance and productivity at work, which will ultimately result in market sustainability. Employers particularly value the behavioral skills that TVET graduates possess, such as their aptitude for planning, organization, leadership, and self-control. Employers are now more interested in graduate skills and traits than they were in the past, demonstrating the importance of lifelong learning in the twenty-first century. These graduates need to be transformative, flexible, and adaptive (Rohanai et al., 2020).

With the rapid advancement of generics, robotics, artificial intelligence, 3D printing, and biotechnology, Malaysia's economy is currently experiencing its fourth industrial revolution. The need to equip school-age children with future abilities to seize chances is anticipated in a field like employment that is rapidly changing. Studies were carried out where employers were given questionnaires to assess the employability of graduates produced by TVET institutions. The findings provided guidance to curriculum developers and policy makers regarding the necessary measures to ensure that TVET graduates have employment skills for the future (Kenayathulla, 2021).

Aside from technical knowledge, employability skills are the most crucial talent to possess in the twenty-first century if you want to compete for and hold a job in Nigeria's industrial worldwide market. A critical examination of the Electrical Technology Education program's curriculum indicated that it valued theory-based courses above practice-based



courses for program skills and lacked any courses that specifically taught positive attitudes and qualities. As a result, graduates don't have enough lifelong learning, competencies, or employability skills like problem solving and decision making. Other subjects discussed include the necessity for general skills, a review of the Nigerian Electrical Technology Education curriculum, and the requirement for employability skills in the TVET program desired attitudes and qualities.

Mohamed (2022) conducted a study in Ethiopia on the factors influencing students' attitudes toward technical and vocational education (TVET). The study found that trainees' attitudes about TVET education were significantly influenced by peer influence and the quality of TVET education. With 175 students, 25 teachers, and one dean in the chosen colleges as the target group, the study was conducted using a descriptive survey research design. The stratified random sampling method was used to pick a sample size of 134 respondents, comprising 61 male and 63 female respondents. Closed-ended questionnaires were utilized to obtain quantitative data, which was then analyzed using both inferential and descriptive statistics. How quickly trainees integrate into the workforce is influenced by their attitudes about TVET education.

The adoption of ICT in education has reshaped how teaching and learning are approached. Rono et al. (2023) conducted a study in Kenya to examine the attitudes of trainers and students towards integrating ICT into English language instruction. The research was conducted at Mosoriot and Kericho Public Teacher Training Colleges in the Rift Valley, involving a sample of 210 students and 16 trainers. Data collection utilized questionnaires, with findings presented using tables, bar graphs, and pie charts. The instructors noted that while students had a positive attitude toward social media networking, they had a negative

attitude against using ICT in speech language. The study suggested that in order to provide their students with practical experience, public teacher training institutes should outfit their buildings with contemporary technology and digital resources. The study established a supportive and encouraging environment influenced the attitude of the students.

TVETs are tasked with not only equipping graduates with the necessary work skills but also including life skills in their trainings because the demand for TVET graduates with life skills that meet the changing market demands is on the rise in Kenya. While few institutions have integrated the desired skills into their curriculum, the majority of institutions rarely consider personal attributes and other soft skills.

### **2.8.2 Confidence**

Confidence is feeling sure of oneself and abilities. It is the inner knowledge that one is capable. Its trusting that one's skills, knowledge and capabilities are good enough. Having confidence in ones abilities, competences and skills is an advantage in competing for employment. An investigation into the abilities and character traits of communication graduates was conducted in the Philippines by utilizing content analysis to examine advertising in the SunStar Newspaper from January 2011 to June 2015. The publishing companies, hotels, car dealerships, industrial firms, and colleges were the graduates' preferred employers. On employment advertisements from SunStar Newspaper, only Sunday issues were looked at using a purposeful sampling approach. Data was collected through interviews from the employers and then subjected to descriptive statistics. Soft skills like communication skills, computer skills, customer service skills, organization skills were found to be important in the industries. The study concluded employers are articulate on the personal attributes they desire their potential employees to possess.

Personal qualities like initiative, imagination, adaptability, and responsibility were quite specific. The study's conclusions suggest that in order to better meet the needs of the industry, the curriculum should be reassessed and new training requirements should be created.

Tentama et al. (2019) in Indonesia aimed at determining the effect of self-confidence on students' readiness for work. The study used cluster sampling technique. Six classes were samples and 174 students of grade seven. Data was collected using work readiness scale and self-confidence scale on a Likert scale while the analysis was done using multiple linear analysis. The results showed that job readiness was significantly impacted by self-confidence. According to the findings, trainees were more prepared for the workforce when they felt more confident. Self-confidence is significant in preparing students and by extension graduates for employment.

### **2.8.3 Resilience**

Resilience is the ability to overcome difficult situations, adapt to challenges, and recover from adversity. The passage highlights the importance of resilience for graduates entering the job market, as they face various challenges such as decreased employment opportunities, rapid technological changes, evolving fields of knowledge, and the need for continuous professional development and lifelong learning. The authors argue that while access to higher education, including TVET, is generally assumed to increase job prospects, the reality is that graduates often struggle to find employment opportunities, requiring resilience to persist through multiple rejections (Tholen & Brown, 2018). Additionally, graduates may experience disillusionment when their career expectations are not met (Burke, 2019).

The study emphasizes that resilience is a crucial attribute for graduates, enabling them to cope with setbacks, maintain motivation in the face of obstacles, and remain calm under pressure (Mainga et al., 2022). Resilience helps graduates adapt to the challenging labor market, unemployment, and underemployment. As workplaces become more complex due to rapid technological changes, increased competition, long working hours, and multitasking, resilience becomes increasingly important for survival in demanding work environments (Mainga et al., 2022).

A study carried out by Gheihman et al. (2021) established resilience can be built by implementing effective programs which reduce burnout and increase well-being of medical students. They developed two skill-based resilience exercises; Breaking Down Easy and My Resilience Practice to identify personal strengths and to identify strategies of coping up with stressors respectively. The two exercises were carried in a train-the-trainer workshop and medical education conference. The participants found the exercises were effective and relevant hence could be incorporated in teaching medical students. Further, a study by Lindsay et al. (2023) to determine whether a resilience training program improved knowledge and adaptive strategies for college student athletes. The study found that resilience training significantly affected college student-athletes' use of adaptive coping strategies in managing academic and sport-related stressors.

#### **2.8.4 Ability to Network**

Most institutions have alumni networks whether formal or informal that enhance the graduate's ability to network. Networking helps in finding out job opportunities and is key in attaining and exchanging industrial knowledge. One can choose to network with people already known to them such as classmates, workmates, mentors, professionals, family

members, trainers, industry and other relevant they may connect with. The social media platform through WhatsApp, Facebook, Twitter, Instagram and LinkedIn has recently been used for networking. For TVET graduates, connecting with alumni from their institution by getting their contacts and using the diverse social media platforms provide a baseline for networking. This study focuses on alumni associations which promotes networking for both trainees and graduates.

Alumni associations offer both monetary and non-monetary support. Daniel et al. (2021) state that alumni networks are crucial to the expansion and improvement of Technical and Vocational Education (TVET) institutions because they offer ongoing interactions, career mentorship, financial support, and the ability to serve as role models and increase institutional reputation. They provide support not only to the trainees but also the graduates, institution and the society at large. Alumni networks are full of professionals in diverse fields and can be a resource in seeking for a job. These networks build business connections and also organize re-unions. Alumni networks connect the graduate with professional contacts that are very beneficial in employability (Zhu, M. 2018). Alumni bring former students together and the connections can lead to graduates getting internships, partnerships and valuable job opportunities. Alumni associations are rich in career services thus helping graduates to find job opportunities and improve their chances of getting job offers (Fischer et al., 2021). Services like career fairs bring together company representatives one on one. Career counseling, webinars, seminars and networking events provide graduates with helpful information about job markets. It is human nature that people prefer to work with other people whom they know or like. Thus, employers give priority to those they know or a network contact that they know.

Most institutions have their own online networks that help current trainees to connect with previous graduates. Graduates who are well connected alumni networks get jobs faster than those that are not (Fischer et al., 2021). Many alumni are willing to help recent graduates in their search for jobs by helping them gain knowledge on job opportunities and even referral of each other to employers (Ofori & Kwarteng, 2021). Mostly, alumni networks persist for years and it takes personal initiative and willingness as a graduate to make use and to be part of alumni.

In Ghana, Daniel and Hammond (2021) established that alumni networks had a role in the growth of higher institutions of learning. The study noted that Universities needed to strengthen alumni relations between the students and the alumni which enhance resource mobilization, attachments, internships and employment opportunities for the students. They recommended universities to involve the alumni in decision making and value their opinions and recommendations. Alumni are role models and inspire students as they share their experiences about academic and social life. Alumni interactions promote self-esteem, self-confidence, and resilience among students.

In 2020, Bizimana et al. conducted a study to examine how students' educational experiences influenced their engagement with their alma mater universities in Ghana, Kenya, and Rwanda. The research employed a cross-sectional survey design, with Kenyatta University (382 participants), University of Rwanda-College of Education (277 participants), and University of Cape Coast (352 participants) comprising a total sample size of 1011. Logistic regression was used to examine the data that was gathered using questionnaires. The study discovered that students' willingness to continue their education at the same school or take part in its activities after graduation was highly impacted by both

academic and non-academic learning experiences. The study suggested that in order to increase students' propensity to affiliate with the university, universities should plan how to make sure they are satisfied with their educational experiences.

Neroorkar and Gopinath (2020) claim that apprenticeship programs help graduates build their social networks while also indicating their employability. Graduates that use these characteristics to their advantage typically land employment rather quickly. Furthermore, Kiruga et al. (2018) stressed the need of collaborating with companies to support graduates in gaining the knowledge and abilities necessary to start their own enterprises and to ease their entry into the workforce. Most studies on alumni networks concentrate on classmates and peers remaining connected, Alma support and mentorship opportunities. There are scanty studies on how being part of the alumni network shape career outcomes among graduates (Sacerdote, 2014). To find out how alumni networks affect trainees, graduates, the institution, and society at large by offering support, more research is required.

## **2.9 Theoretical Framework**

According to Grant (2014), the theoretical framework constitutes the general design of the study, providing guidance and support for the research idea as well as a frame of reference for the investigation. A theoretical framework's role is to provide direction for the entire research procedure based on accepted theories. The Knight and Yorke theory of employability and the human capital theory are the two key theories for this study.

### **2.9.1 The Knight and Yorke Theory**

The study is based on the employability hypothesis developed by Knight and Yorke (2004). Employability, according to Knight and Yorke, is the outcome of acquiring, mastering,

and comprehending the necessary abilities required to succeed in the workforce (Awodiji & Magodidi, 2023). This study is predicated on the idea that acquiring, learning, and mastering the necessary skills enhance TVET graduates' employability right out of graduation. Before TVET graduates begin their search for employment in the desired industry, they are expected to understand what is taught in school in accordance with the curriculum adopted by the TVET institution. Graduates are taught both theoretical and practical expertise through this curriculum. The USEM model, which stands for Understanding, Skills (both subject-matter and generic), Efficacy beliefs-self theories, and Meta-cognition, is used in Knight and Yorke's hypothesis (Ridzwan et al., 2017).

The theory emphasizes the importance of the interaction between personal attributes, including knowledge, skills, and attitudes, and the context in which individuals operate, such as the labor market and educational environment. The quality of education and graduates' readiness for the workforce are influenced by the qualities of their teachers, including their subject-matter expertise, instructional strategies, and capacity to engage pupils. TVET trainers are tasked with delivering key skills to trainees and quality work force as development of employability skills falls upon them (Muriuki & Dominic, 2022). Trainer's level of education in handling both theory and practical; their knowledge and understanding of handling subject matter, experience and their attitude towards instructional delivery influence development of employability skills. Understanding the requirements of the trainee and assessing whether they truly comprehend what the trainer has taught them depend on effective communication. Reasonably, problem-posing education can disrupt the bank model's stale process and encourage independence between



trainers and trainees to engage in more meaningful and fruitful teaching and learning procedures (Bennett & Ananthram, 2022).

Teaching and learning resources also contribute to the effectiveness of the educational process. TVET training requires adequate teaching-learning resources such as physical infrastructure, tools and equipment for practical's, ICT infrastructure both hardware and software in order to have market ready trainees who match the industry needs (Nathaniel, 2020).

The knowledge and skills that graduates acquire are largely shaped by their training program; therefore, graduates' employability can be increased by pursuing a curriculum that is in line with industry demands and places a strong emphasis on developing practical skills. The notion points out that curriculum makers and educational institutions should work together to promote a lifelong curriculum that can enhance teaching and learning. Knight and Yorke (2004) assert that meta-cognition can be derived in three perspectives which include; knowing what one knows, knowing how one can use that knowledge, and knowing how one acquires new knowledge. The keys to developing skills are a curriculum that is relevant to the labor market, trainers who can adjust to the changing demands of the labor market and industry trends, effective instructional methods, trainer availability and accessibility, acquisition of necessary skills, and sufficient exposure to practical sessions.

Moreover, students are exposed to real-world problems and get a better grasp of industry requirements through industrial engagement, which is a collaboration between educational institutions and industries. It provides opportunities for internships, practical training, and exposure to industry standards and practices. Skills acquired by the graduates in the

academic world are not put to use when they reach the labor market due to mismatch between employment and graduates' academic qualifications leading to wastage of resources. Students can improve their fundamental abilities through the nature of well-matched occupations, at least by developing them during the learning process. Sending experts trainers to assess and offering expert guidance during attachments where trainee and the trainers work closely with the supervisor during attachments enhance skill development.

In line with this theory, trainees' and graduates' perceptions and beliefs about their abilities have an impact on their employability. Personal attributes such as resilience, team work, and positive attitude among others make one unique, determine one's effectiveness and make it easy for graduates to get relevant jobs. Their capability can be increased through acquisition of knowledge and skills. According to the literature on employability, certain abilities are prerequisites for employment. Therefore, it suggests that by enhancing their graduates' knowledge, abilities personal attributes, TVET institutions can increase human capital (Mohammed & Ismail, 2021). The idea has advantages in that it emphasizes the trainees' abilities and knowledge, which improves their self-perception of their capacity to perform the job. However, the personal characteristics, beliefs and meta-cognition, which may significantly affect the outcome (employability) are given relatively little consideration in the curricula produced for TVET institutions (Bennett & Ananthram, 2022).

The ability to learn can be significantly impacted by a student's attitude toward obtaining particular skills and abilities as well as their willingness to study. It is debatable if self-

beliefs may change during training, which explains why some trainees act in certain ways while others don't introduce intelligence into the mix (Knight & Yorke, 2003).

The Knight and Yorke Theory model is criticized as being excessively theoretical and lacking support from research reviews in the paper of (Erabaddage et al., 2015). They contend that the methodology is intricate and ineffective for parents and students. Despite these drawbacks, this model has formed the foundation of numerous investigations. Another advantage of this idea is that, while it has been widely used in American project work, it has not received recognition in the UK. Additionally, it has not been widely utilized in research conducted in Kenya and Africa. Human capital theory and functional context theory are used in the majority of employability research in Kenya. Because the theory clarifies the factors that determine a learner's aptitude and employability, which are the study's dependent variables, it is important to this study.

Despite its flaws, the theory's justification in this study is that it emphasizes on understanding of subject matter, personal traits and meta-cognitive elements that can help explain graduate employability in addition to skills. Through the teaching process, beliefs can be modeled in schools (Sumanasiri et al., 2015). In order to ensure that they are instilling in their trainees a mindset that supports employability and national growth, curriculum developers should bear this in mind when upgrading the TVET curricula. It takes cognitive, social, and emotional abilities that will help learners to handle the obstacles in the workplace to prepare them for it. Trainees must be given the chance to solve actual issues that have arisen at their place of employment in collaboration with stakeholders in the business. This calls for someone to be self-motivated, passionate, and assured in their abilities. This theory will contribute to the study's independent variables, which include the

study's trainer characteristic, teaching-learning resources, training curriculum and industrial engagement which influence development of employability skills.

### **2.9.2 Human Capital Theory**

The introduction of human capital theory by Schultz in 1960, education and training has been known to enhance human capital through skill and knowledge facilitating employment in the labor market (Becker, 1962; Schultz, 1960). Human capital theory served another theoretical foundation for this investigation. According to the principle, investing in training and education has both costs and rewards as it increases production capacity (Schultz, 1961, Becker, 1964, Schultz, 1971, Misni et al., 2020). Human Capital Theory posits investment in education, training, and skills development increase individuals' productivity and earning potential, thus enhancing their employability. In the perspective of this study, trainer characteristics, teaching-learning resources, training curriculum and industrial engagement represent investments in human capital. Investing in education and training of TVET trainees and graduates increases their skill level thus becoming more productive. A study by UNDP found a strong correlation between the share of TVET trainees and the amount of income earned and employment rates compared to those who never joined TVET (UNDP, 2017). Investing in education and training is not a waste as it produces benefits to the individual and the society thus delivering both economic and social outcomes. The society gets skilled workforce that is competitive globally and enables economic growth while the individual gets a clear career path, increases earnings and improves the quality of life (Nathaniel, 2020).

Good trainers are essential to students' acquisition of knowledge and skills and the development of their human capital. Skill development through TVETs forms the bases for economic growth and strengthens social cohesion by provision of employment pathways into the labour market (UNESCO, 2015). The information and abilities graduates gain that position them for employment and explain the connection between education (human capital) and employment (economic activity) is known as human capital. Marginson (2019).

A well-designed training curriculum equips graduates with relevant knowledge and skills, increasing their human capital and making them more attractive to employers. The benefits of training people can be seen in the employment opportunities that have resulted. Future gains and returns result from investing in human capital by teaching people new skills thus helping them become more capable (Nathaniel, 2020). Numerous researches on HCT found that the primary causes of unemployment were a lack of soft skills, including problem-solving, skill mismatch, communication, lack of experience, and cooperation (Agwani, 2014; Dobric, 2018; Gokulsing, 2018; Pheko & Molefhe, 2016).

Investing in education and training is not a waste as it produces benefits to the individual as well as the society, delivering both economic and social outcomes. The society gets skilled workforce that is competitive globally and enables economic growth while the individual gets a clear career path, increases earnings and improves the quality of life (Nathaniel, 2020). Future gains and returns result from investing in human capital by teaching people new skills thus helping them become more capable. The majority of the time, those with greater education levels make more money than people with less education

and skill. It is a well-known fact that those with lower levels of education typically have greater unemployment rates.

Conversely, sufficient resources for instruction and learning improve the standard of instruction and help pupils build their human capital. Additionally, industrial involvement gives trainees the chance to put their knowledge and abilities to use in practical situations, which improves their human capital and employability even more. According to the hypothesis, a person with education and training is likely to be productive. Consequently, putting money into human capital usually results in a workforce that is productive, which boosts a country's economic growth (Ramgutty & Sanmukhiya, 2021). A study by UNDP found a strong correlation between the share of TVET trainees and the amount of income earned and employment rates compared to those who never joined TVET (UNDP, 2017).

Due to education inflation, it has been stated that degrees and academic credentials can no longer guarantee greater work chances, which has led to criticism of the Human Capital Theory in China. According to Mohd Puad's (2018) study, employers who invest in training their staff are driven by the rise in innovation and productivity that result in higher profitability. This may not inspire young graduate trainees, but they might seize the chance to advance their abilities and pay for their education. The theory's inability to guarantee the transmission of the abilities demanded by the job market is a drawback. This suggests many young people may not have the opportunity to find job, not because they are uneducated, but rather because they lack the skills and experience that an employer would find valuable. Human capital theory can thus be used to explain whether education and training on their own have an impact on one's capacity to get employment or what exactly makes graduates from TVET institutions employable. As a result, this theory may offer recommendations

to better the existing situation as well as an explanation for why so many young people are jobless despite having graduated from technical colleges.

In conclusion, the Human Capital Theory and the Knight and Yorke employability theories emphasize the value of making investments in education, training, and skill development to increase the employability of graduates. The study's conclusions will emphasize how important trainer attributes, instructional materials, training programs, and industry involvement are in forming graduates' employability skills in Meru County. By understanding and leveraging these factors, educational institutions and policymakers will better prepare graduates for the demands of the labor market.

## **2.10 Summary of Research Gaps**

In summary employability skills are a set of skills which can be broadly classified into personal attributes, cognitive, behavioral and physical skills. Employers find employees with these skills more attractive and marketable. There are notable gaps on development of graduate employability skills as highlighted by trainer characteristic, teaching-learning resources, training curriculum and industrial engagement as well as personal attributes highlighted by the literature review. This study thrives in filling the gaps identified with a view of increasing graduate employability in Meru County.

To impart knowledge and skills to learners and improve employability, TVET trainers pose specific qualities and competencies. TVET instructors play a critical role in making sure that their students gain the skills required to satisfy industry expectations. It depends on the quality and quantity of training received by the trainers to produce the best TVET graduates for the industry

A teaching- learning resource is anything that helps and improves teaching and learning in some way, whether it is directly or indirectly. From the literature review, there are inadequate, outdated teaching-learning resources compared to those in industries where graduates are likely to work after graduation (Muriuki & Dominic, 2022). By making learning more enjoyable, dynamic, and engaging, adequate modern teaching-learning resources can assist trainees in turning theoretical knowledge into practical application.

Numerous studies show that in order to improve graduates' employability, soft skills including personal attributes must be incorporated to the curriculum. A curriculum is a plan that outlines the primary objectives and goals that must be achieved at a given institution. The plan's stated goal of producing graduates from a TVET learning institution with employability skills is supposed to be accomplished via the curriculum, which is viewed as a compound that encompasses the trainee, trainer, teaching, and teaching-learning approaches. The focus of a TVET program is on the learner's acquisition of information, desired skills, and other objectives.

The Kenyan Vision 2030 heavily emphasizes the need to build skills and competencies, the integration of natural values through successful public-private partnerships, and the relationship between education and training and the job market. Numerous studies have found that exposing students to a real work environment improves their employability and gives them work experience. In other instances of industrial involvement, specialists are hired to train the staff by giving them internships and working on collaborative initiatives that improve their prospects of finding employment.

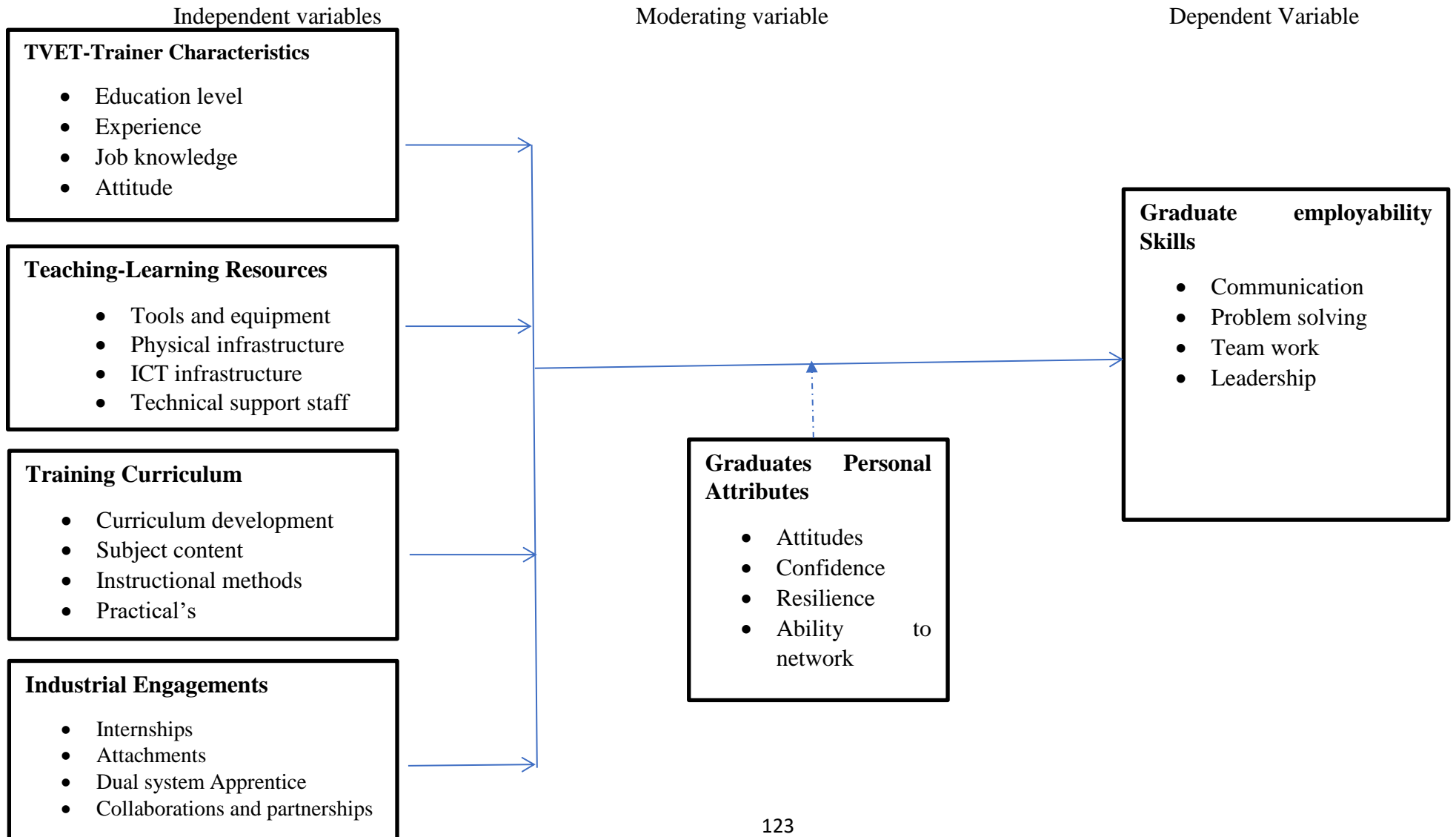


Skills are classified as technical or non-technical and pertain to the capacity to carry out activities physically and cognitively. Having technical skills and academic knowledge are no longer sufficient to secure employment. Owning personal attributes increase graduates' chances of employment. TVETs need to respond to the competence, motivated and adaptable workforce that will drive economic growth and development. Their employability seeks for self-direction which requires personal attributes that employers seek. Graduates who possess relevant knowledge, attitudes and skills are more likely to secure and retain an employment unlike those who do not have.

### **2.11 Conceptual Framework**

This section presents the conceptual framework that shows how the variables in this study are related to one another. The formulation of the study's constructs was based on the theories of employability and human capital. The conceptual framework is presented in Figures 2.2

**Figure 2. 1**  
*Conceptual Framework*



### **2.10.1 Description of variables in the conceptual framework**

The development of employability skills, defined as having the abilities, know-how, and personality traits required to locate and succeed in a job, was the dependent variable in this study. It entails a development of a set of skills that increase the graduates' rate of employment. The capability to secure and retain employment is how this study defined employability. The dependent variable of the study was development of employability skills which were communication, problem solving, team work and leadership skills. The linkages and relationships between the variables used to drive this investigation were depicted in the conceptual framework.

The study's independent variables were trainers characteristics, which can be accounted for by factors like; education level, experience, job knowledge and attitude. The availability of teaching-learning resources, another independent variable, was measured by the presence of adequate tools and equipment, physical infrastructure, ICT infrastructure, and technical support personnel. Training curriculum elements comprised of curriculum development, subject content, instructional methods and practical made up the third independent variable. Industrial engagement which included internships, attachments, dual vocational system, collaborations and partnerships that give students work experience was the fourth independent variable in this study.

TVET colleges make investments in training of trainees to develop them into trustworthy and useful citizens. They must make sure graduates have the proper attitude, knowledge, and skills to become employable citizens. In order for the graduate to gain these abilities, it is crucial that trainer qualities, the accessibility of teaching-learning resources, curriculum

aspects and industrial participation be all taken into consideration. Therefore, these institutional factors are the input that feeds the training process so that trainees can learn new skills. A competent TVET graduate is the end result of the training process as determined by practical, oral, and written assessment as well as performance in their field of specialization. An effective worker who is both appealing and marketable on the job market is the end result. Therefore, the employability of a TVET institutions alumni is used to assess its effectiveness. A further component namely graduate personal attribute was found in the literature research, and it may have an effect on the direction or intensity of the relationship between the independent factors and the dependent variable (Crossman, Ashley 2023). The graduates personal attributes in this study were; graduate attitudes, confidence, resilience and ability to network.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter provided a comprehensive overview of the methods employed in conducting the study. It delved into the study's setting, guiding principles, methodology, and target demographic, detailing the sampling process including sample size and techniques used, data collection tools, and the reliability and validity of those tools. Furthermore, it described the data analysis process post data collection and addressed the ethical considerations pertaining to data analysis.

#### **3.2 Location of the Study**

The study was conducted in Meru County, Kenya, chosen strategically borders multiple counties, including Laikipia, Isiolo, Turkana, Wajir, Mandera, Tharaka Nithi, Embu, and Marsabit. As per the Meru County Integrated Development Plan 2018-2022, Meru County is home to one National polytechnic, five public technical training institutes (TTIs), and 29 Vocational Training Centers (VTCs). The employment rate in Meru County is on par with the national average in Kenya (Meru County, 2018). The five technical training institutions and the National Polytechnic have benefited from the national government initiatives on TVETs.

The location had interest to the researcher because TVET institutions in Meru County have been benefiting from the government significant investment in TVETs with the aim of promoting industrialization and development (Republic of Kenya, 2018). Such investments include among others include; provision of modern equipment to TVET institutions,

increased budget allocations, establishment of the Technical and Vocational Education and Training Authority Nyamai (2022) are supported by the TVET Act of 2013. Despite the efforts of the government and Ministry of Education, the youth unemployment rates are soaring especially among TVET graduates.

Meru County, one of Kenya's 47 counties, experiences significant challenges with graduate unemployment. According to an ILO report, the youth un-employability rate in Kenya stands at 13.8%, mirroring the situation in Meru County. Therefore, the study's findings can be extrapolated to apply to other counties and the entire country (World Bank, 2021). In light of this, the study aimed to investigate the influence of institutional factors on the development of employable skills among TVET graduates in Meru County. The study investigated the influence of trainer characteristics, teaching-learning resources, training curriculum, industrial engagement and the moderating effect of personal attributes on development of employability skills of TVET graduates.

### **3.3 Research Philosophy**

A systematic approach to how evidence is gathered, analyzed, and applied to the key constructs in order to reach conclusions is known as research philosophy. A research philosophy establishes a framework for conducting research by addressing concepts of reality and the nature of knowledge (Collis & Hussey, 2014). Philosophy is about basic problems that arise in every human thought and activity and cannot be resolved by use of one method. Research is studying a phenomenon in order to understand it.

Because this study used a mixed research approach, its underlying thesis was pragmatic. The pragmatism research philosophy asserts that the world can be interpreted in various ways

due to the existence of multiple realities, and no single perspective can fully encompass the whole picture. A pragmatic approach recognizes the diversity of viewpoints on the world and on research, the impossibility of obtaining a complete picture from any one perspective, and the possibility of multiple realities. Pragmatism research philosophy combines various research methodologies and research strategies such as qualitative and quantitative in one single study as they complement each other in arriving at conclusions (Kumar, 2011; Creswell, 2018). Pragmatism enhances better achievement of solutions to a problem. However, the limitation for this philosophy is that it takes more time and resources to plan. The two limitations were countered by the researcher having a budget and a time frame while undertaking the study. It should be noted that pragmatists don't always employ a wide range of techniques; instead, they select a methodology or set of methodologies that best progress a particular area of study (Yardley & Bishop, 2017). In this study, the researcher used questionnaires and interview schedules to conduct a triangulation of the problem under investigation. Because the mixed approach would help solicit answers to the predefined research questions and the underlying premise, pragmatism helped understand the institutional elements that influenced the enhancement of workplace competencies among TVET graduates in Meru County (Kivunja & Kayuni, 2017).

### **3.4 Research Approach**

The approach a researcher uses to collect, analyze, and interpret data is called the research methodology. Creswell (2014) identifies three primary methodologies: mixed methods, quantitative methods, and qualitative methods. Quantitative approach deals with numbers and statistics. Numerical data is collected and analyzed systematically to describe, explain,

predict, control or moderate the phenomenon under study. Quantitative approach embraces deductive reasoning and is used to test or confirm theories and assumptions (Streefkerk, 2022). Qualitative approach is expressed in words mainly to understand something. It deals with words and meanings allowing detailed exploration of concepts and experiences. It enables the gathering of in-depth insight on topics not well understood (Streefkerk, 2022).

A mixed method is a combination of both quantitative and qualitative approaches in a single study. The researcher does not subscribe to one way of data collection and analysis but combines both qualitative and quantitative approaches (Creswell & Plano 2011). Pragmatism research philosophy can be used to combine various research methodologies and research strategies in a single study. This study embraced the mixed method procedure which pragmatic research philosophy advocates (Creswell, 2018). Using this approach, data on trainer qualities, teaching-learning resources, training curricula, industry engagement, and the development of employability skills were gathered, analyzed, and integrated. A deeper comprehension of the research problem resulted from the application of several methodologies. Data was collected from a variety of sources, including open-ended, qualitative personal data and closed-ended, quantitative answer data. The narratives from qualitative research added meaning to numbers. In mixed methods, most research questions are easily answered while insights that can be missed in one method can easily be addressed. Also, the mixed methods provided credible evidences on conclusions and recommendations of a research.

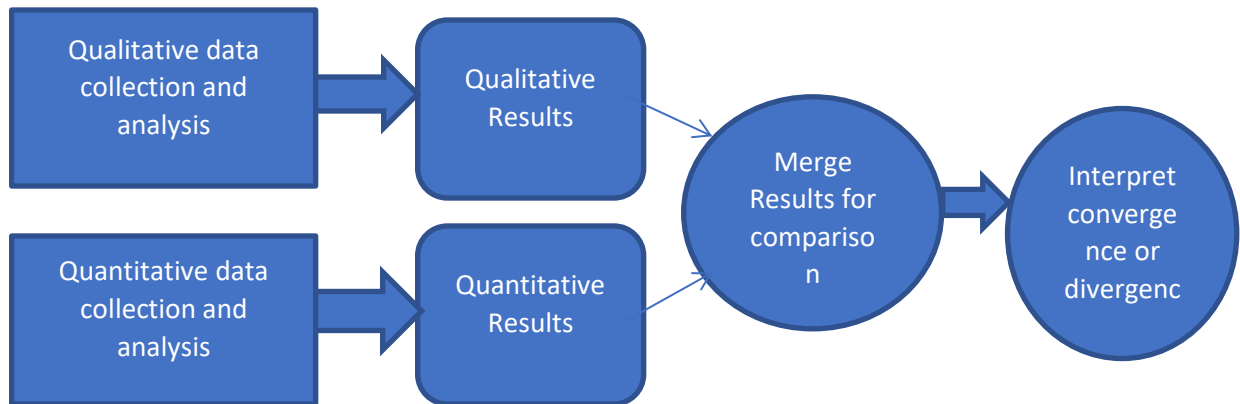


### **3.5 Research Design**

Research design is a strategy, framework, or plan that provides the framework and methods for conducting an inquiry to test a hypothesis or address research issues (Milne et al., 2014). According to McCombes (2022), a research design answers the research question using observed or experienced data and determines how data is collected and analyzed. This study used a convergent parallel research design of cross-section survey for concurrent triangulation in order to learn more about the relationship between graduate employability skills development and institutional factors. This design allowed for the simultaneous collection of both qualitative and quantitative data, as well as the mixing of the two types of data (Creswell, 2003). This was the process of collaborating evidence from different data sources. In this design, both quantitative and qualitative data from trainees, trainers, graduates, HoDs, Principals and key informants (from industry) were collected and analyzed. The process of gathering qualitative and quantitative data was enhanced by concurrent triangulation design, which allowed the researcher to harmonize, compare, and contrast the data for a better understanding of the research problem (Creswell & Creswell, 2018). By combining the quantitative and qualitative data, the convergent parallel research design aimed to offer a thorough study of the research problem (Creswell, 2014). Since both forms of data and result provided different insights, their contribution enabled the problem to be seen from multiple angles and perspectives where quantitative results gave general relationships and trends while qualitative result provided in-depth personal perspectives of the respondents. The convergent parallel research design advanced multiple perspectives of the research problem and one set of results validated with the other. Figure 3.1 shows a simple diagram of convergent parallel design.

**Figure 3. 1**

***Simple Diagram of Convergent Parallel Design***



Source: Creswell & Creswell 2018)

### **3.6 Target population**

This study targeted the five technical training institutions and the National Polytechnic in Meru County, Kenya. A target population, according to Majid (2018), is a collection of things, people, events, or objects of interest about which the researcher hopes to draw general conclusions from a sample study of the population. It is the entire group that the researcher wants to draw conclusion from. The following are the departments found in the six technical training institutions; Agriculture, Business department, ICT Information & Informatics department, Building & Civil Engineering, Hospitality, Tourism & Institutional Management, Electrical & Electronic Engineering, Mechanical & Automotive Engineering and Applied Science & Cosmetology. The researcher focused on two departments that were common and cut across the six institutions; one theoretical the other one practical thus the study target population consisted of 6 training institutions, 2 departments, 6 principals, 12 HODs, 103 trainers, 841 trainees, 475 graduates from the six technical training institutions and the employers.

The target population of graduates were those who completed their diploma courses in 2021 from each of the institutions as they were believed to be somewhere in the industry working. Since the principals oversee the day-to-day operations of the institutions as the chief executive officers, their input was crucial because they offered firsthand knowledge of the institutional elements (trainer qualities, curricula, teaching-learning resources, and industry engagements) that impacted the enhancement of work competencies in TVET graduates. The head of departments were respondents in this study as they were involved in the management of the departments, maintenance of records and making of budgets (TVETA, 2019). The trainers were important because they made sure their students learned the abilities needed to fulfill industry demands. TVET trainers pose specific qualities and competencies that impart knowledge and skills to learners and improve employability. According to Mansour (2021), a good trainer is one who comprehends the curriculum and course material thoroughly, employs a range of teaching techniques, and is aware of the interests and skills of the learners. Orangi et al. (2016) and Kimathi et al. (2020) found that trainers needed to be experts in their fields, able to articulate concepts clearly, inspire students, and foster meaningful learning engagement.

The goal of focusing on the trainees was to find out if the training they were receiving was equipping them for the workforce. The trainees who pursued diploma courses and were in their last year were taken into consideration. These were assumed to have been in the institutions long enough, are likely not to pursue further education in the same institution and were almost ready to join the labor market. They provided current information since a lot of could have changed in the institutions. Through them the study got to know how well their

skills had been developed in preparing them for employment. The graduates were critical in this study for there was need to know whether they were being absorbed in the labor market and how their personal attributes influenced their employability. Locating the graduates working within the industry was be made easier with the use of the TVET tracer or contact database system from the training institutions.

The employers who are the main players in the industry were also respondents in this study. From the information of sampling graduates, the employers were traced and only key informants took part in the study. Exposing graduates to real work environment improved their employability and gave them work experience as industrial engagements boosted their productivity and labor market competitiveness. According to Mesuwini and Bomani (2021), employers recognized that graduates needed to have soft skills, personal attributes and technical skills to improve their sustainability as employees plus a TVET curriculum that met industry needs. Table 3.1 summarizes the target population.

**Table 3. 1*****Target Population***

Name of Institution	Trainees		Trainers	HODs	Principals	Graduates	Employers & Self-employed
	Business	Building & Civil Engineering					
Meru National Polytechnic	159	181	38	2	1	224	1
Nkabune	57	0	12	2	1	59	1
Karumo	100	70	20	2	1	80	1
Kiirua	44	50	13	2	1	36	1
Mitunguu	80	25	11	2	1	50	1
Mukiria	55	20	9	2	1	26	1
<b>Total</b>	<b>496</b>	<b>345</b>	<b>103</b>	<b>12</b>	<b>6</b>	<b>475</b>	<b>6</b>

**3.7 Sampling Techniques, Sampling Procedure and Sample Size**

A sample refers to a portion of the entire population that is included in the actual data collection process (Milne et al., 2014; McCombes, 2022). The sample size is the number of participants needed in a study to adequately represent a population. Sampling techniques are the methods utilized by researchers to select a sample from a population (Majid, 2018). As described by Ishak and Abu (2014), sampling is the process of choosing a subset of the population to represent the larger population under study. Probability sampling and non-probability sampling are the two main sampling methods. While in non-probability sampling, samples are chosen non-randomly, probability sampling samples are chosen at random (McCombes, 2022). This study used mixed research method; quantitative sample was from random and non-random sampling procedure while qualitative sample proceeded from purposeful sampling and the participants came from the same population. A variety of

sample techniques was used, including purposeful sampling, referral sampling, stratified sampling, systematic sampling, and census sampling. A sample refers to a smaller subset of individuals from whom actual data is collected, aiming to reflect the entire population (Milne et al., 2014; McCombes, 2022). The sample size is the number of participants needed in a study to adequately represent the population. In mixed research methodologies, the sample size for quantitative data is usually larger to achieve generalization, while the sample size for qualitative data is more modest to explore individual perspectives. Buhat (2019) suggests that a sample size ranging from 10% to 30% of the total population is typically sufficient. Below is a description of the sample methods, sample size, and sampling procedure for the different target population categories.

### **3.7.1 Sampling of TVET Institutions**

Census sampling was utilized to select the technical training institutions included in the study. There were six training facilities located in Meru County, namely Nkabune Technical Training Institute, Karumo Technical Training Institute, Kiirua Technical Training Institute, Mitunguu Technical Training Institute, Meru National Polytechnic, and Mukiria Technical Training Institute. The study encompassed all six institutions.

### **3.7.2 Sampling of Departments**

The following departments were found in the institutions namely; Agriculture, Business department, ICT Information & Informatics department, Building & Civil Engineering, Hospitality, Tourism & Institutional Management, Electrical & Electronic Engineering, Mechanical & Automotive Engineering and Applied Science & Cosmetology. Some

departments cut across the 6 institutions namely; Business, Building & Civil Engineering departments and Electrical & Electronic Engineering department.

Two departments were purposively selected where Business Management and Building & Civil Engineering departments were selected. Business courses were not practical oriented as compared to Building & Civil Engineering and Electrical & Electronic Engineering courses and the three cut across the 6 institutions. There have been cases of building collapsing thus Building & Civil Engineering department was purposively selected. The two were purposively selected for comparison purposes when it came to graduate employability after completion of studies.

### **3.7.3 Sampling of Principals**

Census sampling was used to sample the principals since they were few in number and were included in the study. According to Singh and Masuku (2014), in census sampling, all the elements of the population are included in the study. Each institution had one principal thus the 6 of them were included in the study.

### **3.7.4 Sampling of HODs**

Census sampling was employed on HODs since they were also few in numbers and were all be included in the study. Head of Departments from the 2 sampled departments in the 6 institutions were included in the study making a total of 12. Each institution had two HODs from Business Management and Building & Civil Engineering departments.

### 3.7.5 Sampling of Trainers

The trainers in this study were selected from the two departments that were purposively sampled; Business Management and Building & Civil Engineering departments. To determine how many trainers would be included in the study, a straightforward random selection procedure was used. The participants had an equal probability of being accepted in the study because to this strategy (Radhakrishnan, 2014; Creswell, 2014). The trainers involved in the study were selected randomly from all the 6 institutions shown in Table 3.2. According to Buhat (2019), a 10% to 30% sample size of the total population was sufficient, thus, the researcher sampled 10% of trainers, resulting to 12 trainers. Table 3.2 shows the trainers sampling matrix.

**Table 3. 2**

*Trainers Matrix*

Institution	Department		%	Sample Size		Total Sample
	Business	B&C Engineering		Business	B&C Engineering	
Meru National Polytechnic	24	14	10	2	1	3
Nkabune	12	0	10	1	0	1
Karumo	14	6	10	1	1	2
Kiirua	8	5	10	1	1	2
Mitunguu	8	3	10	1	1	2
Mukiria	6	3	10	1	1	2
Total	72	31		8	6	12

### 3.7.6 Sampling of Trainees

Stratified sampling was employed on the trainees where sub groups were selected from the two departments in all the technical institutions and then randomly sampled. In stratified



sampling, the population is partitioned in subgroups called strata and the sample is drawn independently from each stratum (Singh & Mangat, 1996). In this study the stratum were the departments (Business Management and Building & Civil Engineering departments) and the diploma level trainees.

Purposive sampling technique was used to sample Diploma trainees who were in their final year pursuing Business Management and Building & Civil Engineering courses. These were in their final years and had been in the institution for some time, having gone through training in both practical and theory and having acquired the skills already needed for employment. From the time the class of 2021 cleared, a lot had changed; like methodology, teaching-learning resources had taken place in the institutions and such information was easily availed by the continuing students. According to Buhat (2019), a 10% to 30% sample size of the total population was sufficient, thus in this case, a sample size of 15% was used on the Business Management and Building & Civil Engineering trainees. Table 3.4 shows the trainees matrix.

**Table 3. 3*****Trainees Matrix***

Institution	Department		%	Sample Size		Total Sample
	Business	B&C Engineering		Business	B&C Engineering	
Meru National Polytechnic	159	181	15	33	24	57
Nkabune	57	0	15	9	0	9
Karumo	100	70	15	15	11	26
Kiirua	44	50	15	8	15	23
Mitunguu	80	25	15	12	4	16
Mukiria	55	20	15	8	3	11
Total	496	345		85	57	142

**3.7.7 Sampling of Graduates**

Stratified sampling method was used to sample the graduates from the 6 institutions who had completed their diploma courses from the Department of Business and Building & Civil Engineering courses in the year 2021. The strata were the departments and the diploma level. Year 2021 was purposively selected and the graduates were traced using the tracer data base from the technical institutions. Where the tracer data was not available, the list of those who cleared was used. Systematic sampling technique was used to obtain the participants who took part in the study. The list of the graduates was used where the first number was randomly selected and every nth number was selected (Thomas, 2022). In this case the first number was the first graduate on the list and the nth number was the 10<sup>th</sup> graduate. According to Buhat (2019), a 10% to 30% sample size of the total population was sufficient, thus in this case, considering graduates are usually scattered all over the country and hence hard to get with ease, a sample size of 15% was used on the Business Management and Building & Civil Engineering trainees. Table 3.4 shows the graduate matrix.

**Table 3. 4**

***Graduates Matrix***

Institution	Total Graduates	Percent (%)	Sample Size
Meru National Polytechnic	224	15	34
Nkabune	59	15	9
Karumo	80	15	12
Kiirua	36	15	5
Mitunguu	50	15	8
Mukiria	26	15	4
Total	475		72

**3.7.8 Sampling of Employers**

From the information of sampling graduates, the employers were traced. Key informants from the industry took part in the study. This study used referral sampling to sample key informants. Referral sampling is a kind of sampling technique whereby research study participants are gathered for the study based on the recommendations of other study participants. This method is often used in qualitative research to recruit participants who have a particular expertise or experience related to the research topic. According to Creswell (2014), referral sampling can be an effective method for identifying key informants on a particular topic. It can also be useful for accessing hard- to-reach populations or for studying sensitive or controversial topics. In this study, the key informants were the employers. They were identified by the graduates from the six TVET institutions who completed in the year 2021. Referral sampling, however, has the potential to produce a biased sample because the people recommended might not be fully representative of the population under study (Cresswell, 2014). To counter the demerit, more subjects that were sampled for the study

were included. The investigator made certain that the referral procedure was clear and that participants understood the goal of the study and their part in it.

Depending on the goals and research question, a qualitative study may require a different number of participants to serve as key informants. Generally speaking, a smaller number of participants can offer richer, more detailed information, whereas a bigger number of people can offer a wider viewpoint on the subject under study. In a qualitative study, it's generally recommended to strive for a sample size of 10–12 people, according to Marshall and Rossman (2006). However, depending on the research question of the study, the subject's difficulty, and the available resources, this number could vary. According to some academics, the number of participants required for a qualitative study can be calculated once the data has reached saturation, or when no new themes or insights are emerging from the data (Creswell, 2014). A qualitative study does not typically have the same number of participants as a quantitative study, where bigger sample sizes are frequently required to establish statistical power. The goal of qualitative research is to thoroughly examine and comprehend a particular phenomenon rather than extrapolating findings to a broader population. The researcher was to use 6 employers; however, data reached saturation at 5.

### **3.8 Research Instruments**

Data collection instruments are ways of gathering information. Two research instruments were used namely; interview schedules and open ended and closed ended questionnaires. Because mixed techniques were utilized in this investigation, the tools were appropriate. The validity and dependability of the data were increased by the use of various research tools in addition to one another. While interviews are appropriate for qualitative research,

questionnaires are frequently employed in quantitative research. The researcher was able to get data directly from the respondents using these two techniques (McCombes, 2022). Primary data was collected from the principals, HODs, trainers, trainees, graduates and employers. A description of each instrument was discussed.

### **3.8.1 Questionnaires**

The design of a questionnaire enables researchers to efficiently gather a large amount of data across a broad area (Kumar, 2014; Creswell, 2014). Questionnaires promote consistency and anonymity, thereby enhancing respondents' confidence and providing them with sufficient time to respond to questionnaire items at their convenience. In this study, three sets of Questionnaires were distributed to gather information on the institutional factors affecting the development of employability skills among TVET graduates in Meru County. These questionnaires were tailored for graduates, trainees, and trainers, with sections organized to align with the prioritized objectives outlined in chapters one and two, ensuring consistency. The content from chapter two and the conceptual framework guided the construction of the questionnaires, informing the specific questions in each section.

To allow respondents to express their genuine opinions and thoughts on institutional factors and the development of employability skills, the questionnaires included both closed-ended and some open-ended questions. A five-point Likert scale was employed to measure frequencies and percentages, and to establish correlations between the variables.

There were five sections to all the three sets of questionnaires. The demographic information from the respondents was shown in Section A. Section B, C, D and E contained questions regarding the independent variables of the study (trainer characteristics, teaching-learning

resources, training curriculum and industrial engagement). Section F contained questions regarding the dependent variable (development of employability skills) while section G contained questions of the moderating variable (personal attributes). The study ensured all sentiments for measuring the latent variables were positively stated as derived from the literature review and reflected on the conceptual framework. Appendix II was questionnaire for trainees, appendix III was for trainers and appendix IV for graduates.

### **3.8.2 Interview Guide**

The interview guide was utilized to gather information from Key Informants (employers), Heads of Departments (HODs), and principals. Interviews are beneficial for acquiring detailed information, allowing for clarification of responses, and enabling the interviewer to interpret non-verbal cues. The open-ended and unstructured questions in the interview guide, as recommended by Creswell (2014), encouraged respondents to provide concise justifications

Probing questions based on the conceptual framework from chapter two and the literature study were included to ensure that respondents provided adequate and relevant information. The format of the interview guide questions mirrored that of the questionnaires. Section A covered demographic data of the respondents, while Sections B, C, D, and E addressed the study's independent variables—trainer characteristics, teaching-learning resources, training curriculum, and industry engagement. Part G contained questions related to the moderating variable (personal qualities), and section F focused on questions about the dependent variable (development of employability).

### **3.9 Piloting of Research Instruments**

The researcher pre-tested the tools to make sure they were valid and dependable before conducting the main study. According to Kaur et al. (2017) and Bryman (2012), piloting assist in identifying any weaknesses, incompleteness, and defects in the study instruments. The pilot study helped in evaluating the reliability and validity of the research instruments and checked how helpful and versatile the research method and tools in the study were (Thomas, 2017). Preliminary testing took place in Nyeri County. Two technical institutions, one national and one local were purposively selected; Nyeri National Polytechnic and Mathenge Technical Training Institute (Nyeri County, 2018). Because of its numerous similarities to Meru County in terms of culture, topography, climatic conditions, and unemployment rates, Nyeri County, which is a part of Kenya, was chosen. Also, the fact that TVET institutions in Kenya operate under the same umbrella of Technical and Vocational Education and Training Authority (TVETA), the same characteristics are present in the institutions. The Education and Training Authority (TVETA), a public agency created under TVET Act No. 29 of 2023, supervises and manages trainings through licensing, registration, and accreditation of training programs, institutions, and trainers.

A select group of individuals, including 2 institutions, who shared traits with the research population, were the focus of the study. Interviews were administered to 2 principals, 2 HoDs and 2 key informants while questionnaires were administered to 4 trainers, 4 trainees and 4 graduates chosen at random to take part in the pretesting. Kothari (2010) reports that just 1% to 10% of the population may be enrolled in pretest institutions. The researcher fixed

grammatical and omission issues in the questionnaires and interview guides before to administering the study instruments by pretesting them.

### **3.9.1 Validity of Research Instruments**

The validity of a study relies on the instruments' ability to accurately measure what they are intended to measure (Kubai, 2019). The precision of the instruments in measuring their designated aspects determines the study's validity, specifically in terms of how well the variables under investigation are represented by the researcher's questions.

There are four types of validity methods: face, construct, content, and criterion-related approaches. In this study, content and face validity of the instruments were established. Content validity refers to the extent to which the questions in the questionnaire effectively represent the topic being researched or capture the concept under investigation, as noted by Milne (2016). The validity of the faces and content of the instruments was assessed by experts in the field and supervisors (Mohajan, 2017).

The supervisors' guidance was helpful in establishing the content validity of this study. Specifically, the experts in technical and vocational education training judged, critiqued, to meet the standards in terms of content. To generate particular attitudes addressing the trainer traits, teaching-learning resources, training curriculum, industrial engagement, and development of employability skills, previous research evaluated for each construct or issue of the study was consulted.

Face validity was a quick assessment, similar to how the questionnaire seemed to assess if it measured the construct under investigation. It tested the validity of the questionnaire on the



face of it as it was evaluated to ensure it was clear, not ambiguous, reasonable and relevant (Sharad & Nilesh, 2020). Face validity was achieved by applying expert judgment and piloting the study instruments with a different group of individuals who had similar features. This allowed for the resolution of any detected grey areas and inconsistencies.

For construct validity, the face validity assessment was adequate to address the same by having sub-heading of the tools in organized sections. By involving experts and the supervisors, the researcher sought advice and direction on the entire coverage of all the aspects of the constructs. Interaction with previous researches on trainer characteristics, teaching-learning resources, training curriculum, industrial attachment and development of employability skills objectives indicators of constructs to be measured were identified. The relevant studies identified were; Muriuki & Dominic (2022); Nyangweso et al. (2022); Chepkoech (2021); Kimathi et al. (2020) and Nathaniel, (2020). Pre-testing gave the researcher the chance to verify the validity of the questions and the comprehension of the answers. Through triangulation, the research instruments also tested the validity.

### **3.9.2 Reliability of Research Instruments**

The precision, reproducibility, consistency and dependability of a study are assessed by measuring reliability. Reliability, according to Bryman (2012), is the ability of the tool to yield consistent findings across multiple trials. It shows how reliable, replicable and unbiased (error-free) the components of the instruments have been throughout time (Chakrabartty, 2013). There are four types of reliability; equivalency, stability (test, re-test), internal consistency and interrater reliability. Pretest was done to determine the instruments reliability. In this study, a total of 12 questionnaires were pretested at Nyeri National

Polytechnic and Mathenge Technical Training Institute in Nyeri County. The pretest respondents included 4 trainers, 4 trainees, and 4 graduates, which aligns with Mugenda and Mugenda's (2003) recommendation of using a 10% sample size for pretesting before actual data collection. Additionally, interview schedules were administered to 2 Principals, 4 Heads of Departments (HoDs), and 2 key informants. The questionnaires were distributed equally using simple random techniques.

The study's findings were inputted into SPSS version 29 to conduct scale analysis, evaluating the reliability of the research instrument. This analysis aimed to assess the extent to which the instrument produced consistent outcomes or data through repeated trials, thus establishing dependability (Kumar, 2011). Cronbach's Alpha coefficients were computed to examine the internal consistency of each tool in the sequence of trainees, trainers, and graduates. As per Bryman (2014) and Kothari (2012), an alpha value of 0.7 or higher is deemed acceptable to ensure the instrument's reliability. The computed Cronbach's Alpha value for each tool is presented in Table 3.5.

**Table 3. 5**

***Reliability of the data***

Instruments	Cronbach's alpha	N
Trainees Questionnaire	0.814	4
Trainers Questionnaire	0.760	4
Graduates Questionnaire	0.767	4
Overall average	0.778	12

The Cronbach's alpha value was 0.778, as Table 3.5 demonstrates. In accordance with Taber (2018), the Cronbach's alpha value falls between 0 and 1, with 0.7 serving as the threshold for the questionnaire's reliability. Bryman (2014) and Kothari (2012) state that an acceptable threshold alpha value of 0.7 is needed to meet the requirements for instrument reliability. The Cronbach's ( $\alpha=0.778$ ) suggested that the tool was dependable for examining and illuminating the study's research challenge. Finding that 12 individuals clearly comprehended the questions and provided input was intriguing. This suggested that the instrument was trustworthy and that the study's sample of respondents was aware of the questions. The findings of Oundo's study of 2021 were comparable.

Reliability is the degree of precision and comprehensiveness of coverage. To ensure reliability, an interview guide that had a highly structured printed set of questions with the same format and sequence of words was used for each participant. Mock interviews were conducted during the pilot study to ensure trustworthiness, comprehensiveness and meaningfulness of the responses; this is advocated by Cohen, Mnion and Marrison (2011) who argue that changes in wording, context and emphasis may undermine reliability because it stops to be the same question for each participant. To enhance the reliability of the findings of this study, it used multiple data sources and methods of data collections.

### **3.10 Data collection procedures**

In order to seek for a research permission from the National Council of Science and Technology (NACOSTI), a letter of introduction was obtained from the Kenya Methodist University Research and Ethics Department. Copies of permit were shared with the county education offices and the County Commissioner as per the permit guidelines. Once the

research authorization was obtained, permission to gather data was sort from the TVET principals through County Director of TVET. Permission was also sought to collect data from the key informants. Schedules with prospective participants were made specifying the date, time location of data collection. Interviews on the principals and HODs were done by the researcher. Permission was sort from Meru County Director of TVET who introduced the researcher to the Principals. Permission was also sought from the principals to administer the questionnaires to the trainers and continuing students as well as interview schedules to the HoDs. The questionnaires were administered by the researcher. Phone calls were made to the employers to schedule for the meeting and administer the questionnaires. Once the questionnaires and interviewing guides were completed, data was ready for analysis. The consent letter to collect data was in Appendix I.

### **3.10.1 Procedure for Administering Questionnaires**

On approval to collect data, agreed days of data collection was established. The researcher distributed the questionnaires, and approached the respondents with courtesy and answered their queries. For efficiency and effectiveness, the researcher called the principals before the day of administering the trainers and trainees questionnaires. Information about the graduates were sought by use of the institution's tracer data base or list of the graduates and questionnaires sent to those sampled. The questionnaires had a few open -ended questions for qualitative data and highly structure questions for quantitative data. The filled questionnaires were collected as agreed with the respondents and numbered accordingly before they were sorted out. The trainees, trainers and graduates questionnaires are in Appendix II, III and IV.

### **3.10.2 Procedures for Conducting Interviews**

Appointments were made with the principals and employers through telephone calls to set the date, venue as well as time for interview conduction. Interview for the Head of Departments were done in liaison with the principals upon which time, venue and date was agreed on. The researcher personally administered the interviews. Interviews were less structured for in-depth collection of qualitative data. Consent to take notes and audio recording using smart phone of the responses was sorted from the interviewees before the interview were done. After the interview, the respondents were appreciated orally with a thank you note. The interview schedules for the principals, HODs and employers are in Appendix V, VI and VII.

### **3.11 Data Analysis and Presentation**

The acquired data was analyzed, assessed, and compiled according to the objectives. Mixed analysis was used to analyze data. Data was analyzed to get information that was usable and useful. Analyses of both quantitative and qualitative data were conducted using different methodologies. The results, both quantitative and qualitative, were arranged in parallel order. In order to comprehend how the two outcomes converged or diverged, the quantitative statistics results and the qualitative themes were arranged, with a discussion of the contrasts and similarities between the themes and the statistical data.

### **3.11.1 Quantitative Data Analysis Procedures**

Quantitative data analysis involves the use of numerical information to analyze statistical data. It comprises two main techniques: descriptive statistics, which summarize and identify trends within a specific dataset to provide detailed insights, and inferential statistics, used to predict and draw conclusions about a broader population based on sample data. They extrapolate findings across groups, create predictions, highlight pre-existing connections among various factors, and test hypotheses. Closed-ended questionnaires yielded quantitative data for this investigation while open-ended questionnaires yield qualitative data.

The quantitative data was first transformed into an understandable and readable format. The data was entered and coded using SPSS Version 29 in order to prepare it for analysis. This simplified the process of calculating the outcomes of descriptive analysis, which included figures, tables, percentages, means, and standard deviations, and inferential analysis, which included regression and correlation analysis.

Regression analysis and correlation were used to validate the hypothesis. Inferential analysis was applied to determine how institutional factors affect the development of employability skills among TVET graduates in Meru County. The passage details the use of regression analysis in the study to research the connections between different variables. Specifically, regression analysis was employed to examine how independent variables such as trainer characteristics, teaching-learning resources, training curriculum, and industrial engagement relate to the dependent variable of employability skills development among TVET graduates.

Multiple linear regression analysis was performed to determine the collective relationship among the four independent variables, the moderating variable (personal attributes), and the dependent variable (enhancement of work competencies). This approach facilitated the examination and understanding of how institutional factors are linked to the enhancement of employability skills among graduates. It also aided in summarizing the study's outcomes, findings, and recommendations.

In the study, multiple linear regression was used to predict the influence of institutional factors, which were the independent variables (X1, X2, X3, and X4), and the moderating variable of graduate personal attributes (Z1) on the dependent variable of development of employability skills (Y). This statistical technique allowed the researchers to analyze the combined effect of multiple independent variables on the dependent variable, facilitating a comprehensive understanding of the factors contributing to the development of employability skills among TVET graduates.

The multiple regression models to be used to test is shown below:

$$Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + e, \text{ Where:}$$

Y = Development of Employability Skills

B<sub>0</sub> = Constant

B<sub>1</sub>, B<sub>2</sub>, B<sub>3</sub>, B<sub>4</sub> = regression coefficient weights for X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub>, X<sub>4</sub>, X<sub>5</sub> as shown below:

X<sub>1</sub> = Trainer characteristics

X<sub>2</sub> = Teaching- Learning resources

X3 = Training curriculum

X4= Industrial engagement

X5= Personal Attributes

$\varepsilon$  = is the estimated error of the model.

To confirm that the assumptions of regression and analysis of variance were met, diagnostic tests such the normality test, heteroskedasticity test, auto correlation test, and multicollinearity test were performed.

### **3.11.2 Qualitative Data Analysis Procedures**

In qualitative data analysis, data is organized, coded, analyzed and interpreted to capture themes and patterns to answer research questions. The data collected through open ended questions was coded and analyzed thematically. The codes for the trainees ranged from trainee 1 to 123, the trainer codes ranged from trainer 1-11 and graduate codes ranged from graduate 1 to 37. The qualitative data from the interview guides were also coded and analyzed thematically. The following codes were used; Institution (TVI 1, TVI 2, TVI 3TVI 4, TVI 5 and TVI 6. For the Principals, the following codes were used (P- TVI 1, P- TVI 2, P-TVI 3, P- TVI 4, P-TVI 5 and P- TVI 6). The codes for the HoD Business Management ranged from H-BU-TVI 1 to H-BU-TVI 6 while those of Building and Construction ranged from H-BC-TVI 1 to H-BC-TVI 5. The key informants were coded as KI 1 to KI 5 (Creswell, 2015).

In this study, thematic analysis was applied where patterns and themes were identified (Braun & Clarke, 2006). The categorizations, sequences, themes and patterns that recur often were used to analyze the qualitative information from the interview guides, and data from



open ended questions in the questionnaires. According to Braun and Clarke (2006), the qualitative data analysis in this study proceeded in six steps. Learning about the data was the first step. The transcripts were read several times while making notes and noting our initial thoughts. Initial codes were created in step two. Here, the information was arranged in a sensible and methodical fashion. Coding broke down the enormous amount of data into manageable parts. Finding topics was done in the third step. A theme is a pattern that encapsulates an important aspect of the data. The wider themes that particularly addressed the study issue were used to group the codes together. Initial codes were created. The fourth step was about reviewing the themes. All data that was relevant to the theme was gathered. The codes were reviewed, revised or combined into themes as recurring themes are identified. In the fifth step, themes were defined. This was where the essence of what each theme was all about was identified. Finally, in the last stage a write up was done where the themes were represented in a cohesive manner. The findings were presented in narrative form using derived themes to elaborate a point.

Once the results of quantitative and qualitative data analysis were gotten, the two were merged to compared and contrasted in order to make interpretations on convergence or divergence as well as make conclusions and recommendations.

### **3.12 Ethical Considerations**

The research for this project was carried out in compliance with ethical principles at all times, including those relating to transparency, accountability, and responsibility as well as no judgments of right and wrong (Bryman, 2012). An application for a research permission was submitted to the NACOSTI upon receipt of an introductory letter from Kenya Methodist

University. The county director of TVETs in Meru County as well as the education departments there received copies of the permission where the data was gathered. After obtaining research permission, a consent letter (Appendix I) was drafted, the study's primary objective, purpose of engagement, and targeted respondents were clearly defined. Participants were assured of the voluntary nature of their participation and the confidentiality of their identities. Questionnaires were completed at participants' convenience, and they had the freedom to withdraw from the study at any point. Permission to record conversations during interviews was also requested, and participants were provided with anonymity codes to protect their identities.

The researcher ensured that the findings were accurate depictions of the circumstance as given by the respondents in order to prevent fabrication. On document analysis, the researcher encouraged the respondents to avail the documents and the researcher would use only those accessible and confidentiality would be maintained by keeping the documents availed under lock and key. The research correctly referenced all used sources in accordance with the APA (7th edition) reference format. A thank-you note was sent to each participating respondent both during the questionnaire collection process and following the interview to express gratitude.

## **CHAPTER FOUR**

### **RESULTS AND DISCUSSION**

#### **4.1 Introduction**

This section delves into the results of data analysis, interpretations, and discussions regarding the correlation between institutional factors and the development of employability skills among TVET graduates in Meru County. The dependent variable in this research was the enhancement of employability skills in TVET institutions, whereas the independent variables were the institutional elements. The chapter is structured to present the response rate, demographic data, reliability test, diagnostic test, and conclusions derived from the study factors in a sequential order. The primary results pertaining to the variables are presented in

#### **4.2 Response rate**

The study had a sample size of 249 participants. Trainees were 142, 12 trainers, 72 graduates, 11 HoDs, 6 Principals and 6 key informants from the industry. Out of the 226 questionnaires administered to all respondents, 202 were returned. The response rate was as follows; trainees 123(86%), trainers 11(92%) and graduates 68(95%). Principals, key informants, and HoDs were given the interview guides. HoDs had a response rate of 11 (92%) and principals, 5 (83%) respectively. One institution did not offer a diploma in building and civil engineering while one principal declined to be interviewed. The key informants were selected to saturation level to which this study reached at five. Eighty-nine-point three percent (89.30%) of the total responses were received, which was adequate to carry out the inquiry. The same is displayed in Table 4.1.

**Table 4. 1*****Response rate of the study***

Target population	Sample size	Response rate	Percentage (%)
Trainees	142	123	86
Trainers	12	11	92
Graduates	72	68	95
HoDs	12	11	92
Principals	6	5	83
Key informants	-	5	-

Eighty-nine-point three percent (89.30%) was the total response rate, as shown in Table 4.1. This response rate corresponds with the study by Nyangweso et al. (2022), which attained an 87.5% response rate. Their research aimed to evaluate how institutional factors affected the development of students' skills in public technical training institutions in Kenya. According to Fincham (2018) and Kumar (2011), this response rate is deemed appropriate and sufficient for a descriptive study. Mugenda and Mugenda (2003) proposed that a 70% response rate is adequate, whereas Morton et al. (2012) contended that 60% is acceptable. Taherdoost (2016) indicated that the high response rate of 89.30% in this study suggests that the findings are likely to accurately represent the entire population. This high response rate was attained through effective planning, coordination, and communication with the County Director of TVET Education and the Principals of all the institutions involved.

### 4.3 Profile of the Respondents

The profile of the respondents comprised trainees, trainers, graduates, HoDs, Principals and key informants. Profile of the respondents was necessary so that it could show the characteristics of respondents for the purpose of drawing conclusions from them. Section A of trainees, trainers and graduates' information on the questionnaire consisted of the profile of the respondents while section A of the interview schedules consisted of gender only. The demographic profile of the respondents is presented in the following order; trainees, trainers, graduates, HoDs, Principals and key informants.

#### 4.5.1 Profile of Trainees

Admission to TVET institutions is open to all discriminating nobody in terms of age, gender and course applied according to TVET Act 2013. The profile of the trainees included course enrolled, age of the respondent and the gender of the respondent as shown in Table 4.2.

**Table 4. 2**

***Profile of Trainees***

Description	Variable	Frequency	Percent
Course Enrollment	Dip in Business	64	52
	Dip in Building & Civil Engineering	59	48
Age of Respondent	18-24	105	85.4
	25-30	17	13.8
	31-40	1	0.8
Gender of the respondent	Male	71	57.7
	Female	52	42.3

Table 4.2 reveals that 64(52%) of trainees were enrolled in Business Management courses while 59(48%) were in Building and Civil Engineering. This implies there is low enrollment for technical courses in TVET institutions in Meru leading to skill gap. The age varied with 105(85.4%) being between 18-24 years, 17(13.8%) aged 25-30 years and 1(0.8%) being 31-40 years. The results indicate majority of the trainees enrolled for TVET courses at 18-24 years. This implies they can advance their education to enhance their employability. This study agrees with Nyangweso et al. (2022) that 50% of the trainees are in that age bracket. Similarly, Mwashighadi and Kitainge (2023) noted 94.7% of the trainees were between 21-30 years thus can make career path choices independently. The results of this study indicate that the majority of the trainees enroll in TVET institutions at 18-30 years, thus the 100% transition policy from basic education is embraced. The age bracket of 18-24 years is unemployed because they are still in school thus disagreeing with (ILO, 2020) that out of 1.3 billion youths of age 15 to 24 globally, only 41% have secured a job. In relation to employability, the trainees between the age of 25-30 years can get employed after acquiring the requisite skills.

Regarding gender, 71(57.7%) of the respondents were male while 52(42.3%) were female. This implies there is gender disparity with male dominance in technical and vocational education in Meru County. This is a reflection of the status of TVET institutions in Kenya where according to Gender Parity Index (GPI), technical and vocational education is dominated by male gender KIPPRA (2024). This agrees with Mwashighadi et al. (2023) who noted 94.7% of the trainees in the coastal region were males. This can be attributed to lack

of interest by female trainees to pursue technical courses. This signifies the need for targeted efforts to encourage and support female gender to pursue technical courses.

#### 4.5.2 Profile of Trainers

The profile of trainers included the trainer course, age bracket, gender, education level, number of years as a trainer and number of years as a trainer and number of years worked in the current station. Results are presented in Table 4.3.

**Table 4. 3**

*Profile of Trainers*

Description (N= 11)	Variable	Frequency	Percent
Course	Dip in Business Management	5	45.5
	Dip in Building and Civil Engineering	6	54.5
Age Bracket	18-24	1	45.5
	25-30	7	63.6
	31-40	2	18.2
	Above 41	1	9.1
Gender	Male	7	63.3
	Female	4	34.6
Education Level	Diploma	2	18.2
	Degree	9	81.8
Number of years as a trainer	1-5	8	72.7
	6-10	2	18.2
	21-30	1	7.1
No. of years worked in the current station	1-5	11	100

Table 4.3 displays that 5 (45.5%) trainers were in Business Management, while 6 (54.5%) were in Building and Civil Engineering. This indicates a higher number of trainers in the Building and Civil Engineering department, aligning with the focus of TVET institutions on technical courses. It also suggests that trainers in TVET institutions are qualified to provide both theoretical and practical instruction in their specialized areas. This finding supports Latif's (2022) observation that TVET institutions primarily deliver technical skills, hence the higher number of trainers in the Building and Civil Engineering department.

Regarding age distribution, the majority of trainers were between 25-30 years old, constituting 7 (63.6%), followed by 2 (18.2%) in the 31-40 age bracket. Trainers aged 18-24 and above 41 years each comprised 1 (9.1%). The data shows that a significant proportion, 81.8%, of trainers were below 40 years old, meeting the minimum age requirement of 45 years and below according to TSC standards. Mwashighadi et al. (2023) reported similar results, with 75% of trainers being below 40 years old. This implies that trainers have ample time to further their careers by pursuing additional professional courses.

In terms of gender, males dominated the trainer demographic at 7 (63.6%), compared to females at 4 (36.4%). This indicates a gender disparity among trainers, possibly reflecting the implementation of the one-third rule gender policy in TVET institutions in Meru County. This gender imbalance is consistent with the findings of Nyangweso et al. (2022), where 59.4% of teaching staff were males and 40.6% were females. Similarly, Mwashighadi et al. (2023) noted a male majority of 70%, compared to 30% females among trainers.

Examining education levels, the majority of trainers held a bachelor's degree at 9 (81.8%), while 2 (18.2%) were diploma holders. This finding aligns with Chepkoech et al. (2021) and



Mwashigandi et al. (2023), who also reported a high percentage of trainers with Bachelor's Degrees, at 63.4% and 70%, respectively. The results indicate compliance with employment regulations, which require TVET trainers in Meru, Kenya, to possess a bachelor's degree in the relevant field. Aluoch (2021) suggests that adequate educational qualifications are essential for demonstrating the reliability of graduate outcomes.

Regarding work experience, 8 (72.7%) trainers had been working as TVET trainers for 1-5 years, while 2 (18.2%) had 6-10 years of experience, and 1 (9.1%) had 21-30 years of experience. This distribution falls within the range specified by the Technical Education and Training 2013 Act and the 2010 Constitution, aligning with the goals of Vision 2030. All respondents had been in their current positions for 1-5 years. The quality of trainees' skills and competencies reflects the trainers who transfer such skills. Nyangweso et al. (2022) found that 69.6% of TTIs professors in Kenya had 1-5 years of teaching experience, indicating a similar trend. The study suggests a significant relationship between trainers' work experience and performance, as the number of years spent as a trainer influences performance (Aluoch, 2021). However, Muriuki and Dominic (2022) noted that trainers lacked experience in related industries, indicating a lack of industrial exposure to transfer the required employability skills to trainees.

### 4.5.3 Profile of Graduates

The profile of the graduates included the course enrolled, age and gender as shown in Table 4.4.

**Table 4. 4**

*Profile of Graduates*

Description (N= 68)	Variable	Frequency	Percent
Course Enrolled	Dip in Business	28	41.8
	Dip in Building and Civil Engineering	40	58.8
Age	18-24	29	42.7
	25-30	33	48.5
	31-40	6	8.8
Gender	Male	53	77.9
	Female	15	22.1

Results in Table 4.4 reveals 28(41%) of the graduates had trained in Business Management courses while 40(58%) had trained in Building and Civil Engineering. This implies most of the respondents preferred hand on courses which are more marketable. In terms of age, 29(43.2%) were between 18-24 years, 33(48.5%) 25-30 years and 6(8.1%) between 31-40 years. This shows the graduates are still young and can improve the skills gained by enrolling for professional courses for better opportunities in the world of work. According to Muriuki and Dominic (2022), majority of the graduates are deemed to have acquired the requisite skills, knowledge, attitudes and values necessary for employability. On the contrary, in Kenya, statistics have shown that unemployment rate of youths aged 13-35 years who are

eligible to work and the most productive labor in the country stands at 13.84% among the highest in the world (World Bank, 2021). On gender, 53(78.4%) were male, 15(13.5%) were female. The earlier Table 4.4 with trainee response showed gender disparity with male trainees being the majority which equally explains high male graduates. A similar study by Aluoch (2021) indicated male graduates were higher at 60%. There is a likelihood of a minority group 3(8.1%) in the institutions that are neither male nor female.

#### **4.5.4 Profile of HoDs**

The profile of HoDs' included the department they headed and their gender. From the interview schedules it was established that there were more male heads of departments than the female. Out of the 11 HoDs interviewed, 7(63.3%) were male while 4(36.4%) were female. The study shows a consistent gender disparity in TVET institutions. Nonetheless, the government's gender mainstreaming program has taken effect, as evidenced by the fact that 36.3% of HoD appointments fulfilled the 30% minimum criteria (CoK, 2010). The results agree with the study by Mwashighadi et al. (2023) who noted HoDs of TVET institutions in the coastal region was 62.5% were dominated by the male gender. In terms of HoDs in building and civil engineering 5 were male and one of the institutions did not have one. This can be attributed to the nature of technical courses offered by TVET institutions. In business management, 4 HoDs were female while 2 were male.

#### **4.5.5 Profile of the Principals**

Gender was sought in the principals' profile. Principals provided further insight into the field of study because they are the Chief Executive Officers responsible for the day-to-day

operations of TVET institutions. Out of the five principals who responded, 4 were female. The results show there were more women in instructional leadership positions in TVET institutions in Meru County. However, in a study by Nyongesa et al. (2021), 6 principals were male while 2 were female implying there were more males than females in Instructional leadership positions in TVET institutions in other counties.

#### **4.5.6 Profile of the Key informants**

The profile of key informants (employers) is not directly involved in the development of employability skills which was the dependent variable of the study. However, their profile included gender and position held in the organization. From the 5 key informants, one (1) was a county public service board CEO, another one was the human resource manager of a private company while 3 were CEOs of their own enterprises. The industry was represented by the key informants, whose opinions on the development of employability skills among TVET graduates were crucial, so having this information helped to better comprehend the study. Dynamic industry and institutions linkages are key to economic transformation yet in Kenya, such linkages are weak (Republic of Kenya, 2020). The main objective of TVET is employability thus the training should be directly linked to the needs of the industry. The training should be demand driven. According to Meta (2022), employability skill gap is a major problem facing the employer, employee and those seeking employment and this forms the basis of involving the key informants who represented the employers in this study.

#### 4.4 Reliability Test

The reliability of the data collected was tested before using it in data analysis to ensure the tools had the ability to yield consistent findings. Cronbach's Alpha coefficients were computed to examine the internal consistency of each tool in the sequence of trainees, trainers, and graduates. Cronbach's Alpha coefficients value with 0.7 serve as the threshold for the questionnaire's reliability. In this study, Cronbach's Alpha coefficients value of 0.937 suggest the items within the trainee's tool, trainer's tool, and graduates' tool are highly correlated and effectively capture the intended construct (Taber, 2018). The combined tool and Table 4.5's Cronbach's Alpha values for each questionnaire offer insightful information on the reliability of data collection regarding influence of institutional factors on TVET graduates' development of employability skills.

**Table 4. 5**

##### *Reliability Test Result*

Instruments	Cronbach's alpha	N
Trainees Questionnaire	0.944	123
Trainers Questionnaire	0.948	11
Graduates Questionnaire	0.95	68
Combined Alpha	0.937	202

Table 4.5 shows that Cronbach's alpha value of individual questionnaires (Trainees: 0.944, Trainers: 0.948, Graduates: 0.950) and the combined tool (0.937). The results showed the reliability value of data collected from every variable was high. The exceptionally high

Cronbach's Alpha values, indicate a very strong level of internal consistency. This implies that each questionnaire's items and the tool as a whole had a strong correlation with one another and measure the same underlying construct. In accordance with Taber (2018), the Cronbach's alpha value falls between 0 and 1, with 0.7 serving as the threshold for the questionnaire's reliability. Bryman (2014) and Kothari (2012) state that an acceptable threshold alpha value of 0.7 is needed to meet the requirements for instrument reliability.

A high level of internal consistency is indicated by the Cronbach's Alpha coefficients for both the combined tool and the individual questionnaires (for graduates, trainers, and trainees). This ensures precise data collection on the influence of institutional factors on the development of employability skills among TVET graduates, thereby strengthening the research design. These findings are in line with Oundo's 2021 investigation.

To ensure reliability, the interview guides for Heads of Departments (HoDs), Principals, and key informants included highly structured printed questions with a consistent format and sequence of words used for each participant. Mock interviews were conducted during the pilot study to ensure the responses were trustworthy, comprehensive, and meaningful; this approach is supported by Cohen, Manion, and Morrison (2011), who argue that variations in wording, context, and emphasis can undermine reliability by making the question different for each participant. To enhance the reliability of this study's findings, multiple data sources and methods of data collection were used.

## **4.4 Diagnostic Tests**

According to Hair et al. (2019), diagnostic tests are used to assess the assumptions and characteristics of data in statistical analysis. They help researchers to identify any issues or violations of assumptions that may affect the validity of their analysis or the interpretation of results. The diagnostic test used in this study were; Normality Test, Linearity Test, Multicollinearity Test, Normality Test, Heteroscedasticity and Autocorrelation.

### **4.4.1 Normality Test**

A normality test is a statistical technique used to determine if a given sample has a distribution similar to a normal population. In this study, the Kolmogorov-Smirnov test was used to assess whether the data followed a normal distribution. The result of this test, usually expressed as a significant value (P-Value), is essential for evaluating the normality assumption. When performing the Kolmogorov-Smirnov test, a P-Value below 0.05 indicates a departure from normality, suggesting that the data does not follow a normal distribution. The detailed results of the normality test, including the P-Values, are presented in Table 4.6.

**Table 4. 6*****Normality Test***

Tests of Normality	Kolmogorov-Smirnov <sup>a</sup>		
	Statistic	df	Sig.
Development of employability skills	0.285	202	0.980
Trainer characteristics	0.302	202	0.714
Teaching learning resources	0.187	202	0.174
Training curriculum	0.253	202	0.503
Industry engagement	0.256	202	0.941
Personal attributes	0.298	202	0.189

a Lilliefors Significance Correction

The p-values for all variables, including "Development of employability skills," are greater than 0.05, suggesting that there is no significant deviation from normalcy, according to the findings of the Kolmogorov-Smirnov test for normality. The Kolmogorov-Smirnov test indicates that these variables might well resemble a normal distribution.

Since the assumption of normality is not violated for any of the variables, it is reasonable to proceed with parametric statistical analyses that assume normality, such as t-tests, ANOVA, and linear regression. This enhances confidence in the validity of the statistical analyses conducted using these variables and their relationship with the development of employability skills among TVET graduates.

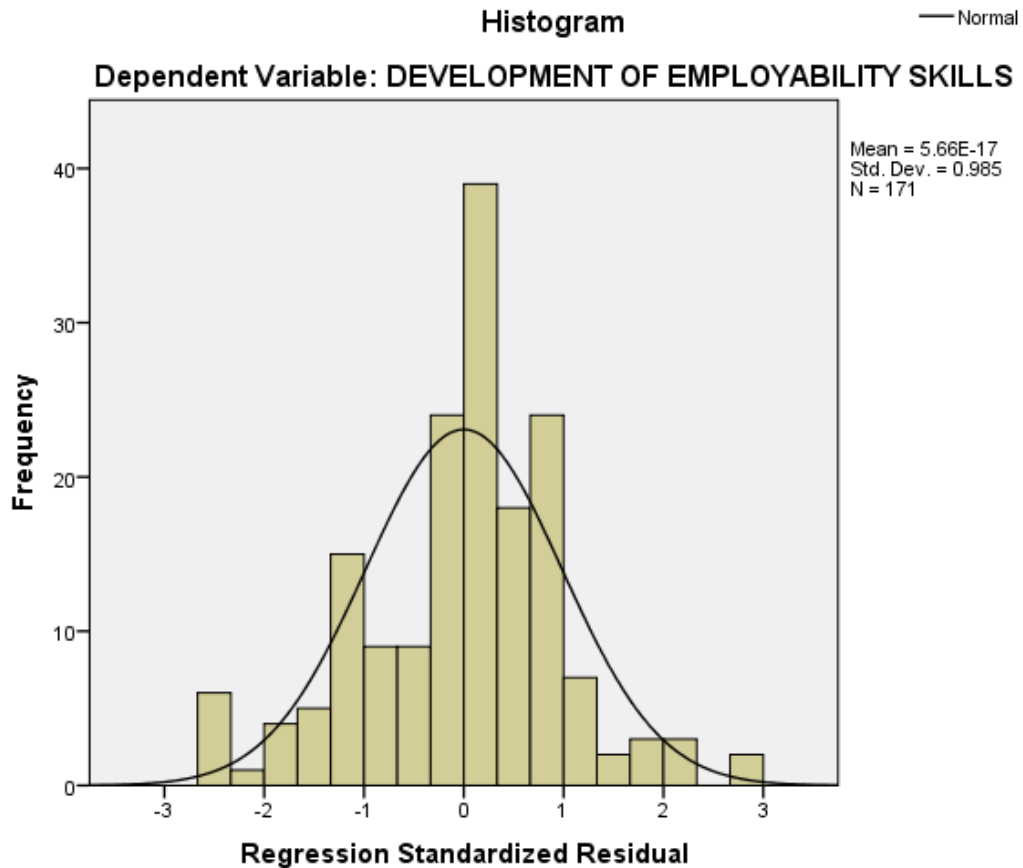
In nutshell, the non-significant findings of the normality tests imply that, for the majority of variables pertaining to institutional factors influencing TVET graduates' development of employability skills, the premise of normalcy is not significantly broken. This lends credence to the reliability of statistical analyses that make use of these variables. To guarantee the validity of the results, additional presumptions and variables must be taken into account



during data analysis. To verify the normality status of the data, a histogram chart was created for the dependent variable as illustrated in Figure 4.1

**Figure 4. 1**

*Histogram on Development of Employability Skills in of TVET graduates*



Based on the results presented in Figure 4.1, the study concluded that there is no major deviation from normalcy in the data, since the data distribution is somewhat skewed. To give a clear picture of the normalcy condition's state, more typical Q-Q graphs were produced. The plots of Q-Q are displayed in Figure 4.2.

**Figure 4. 2**

*Normal Q-Q on Development of Employability Skills of TVET Graduates*

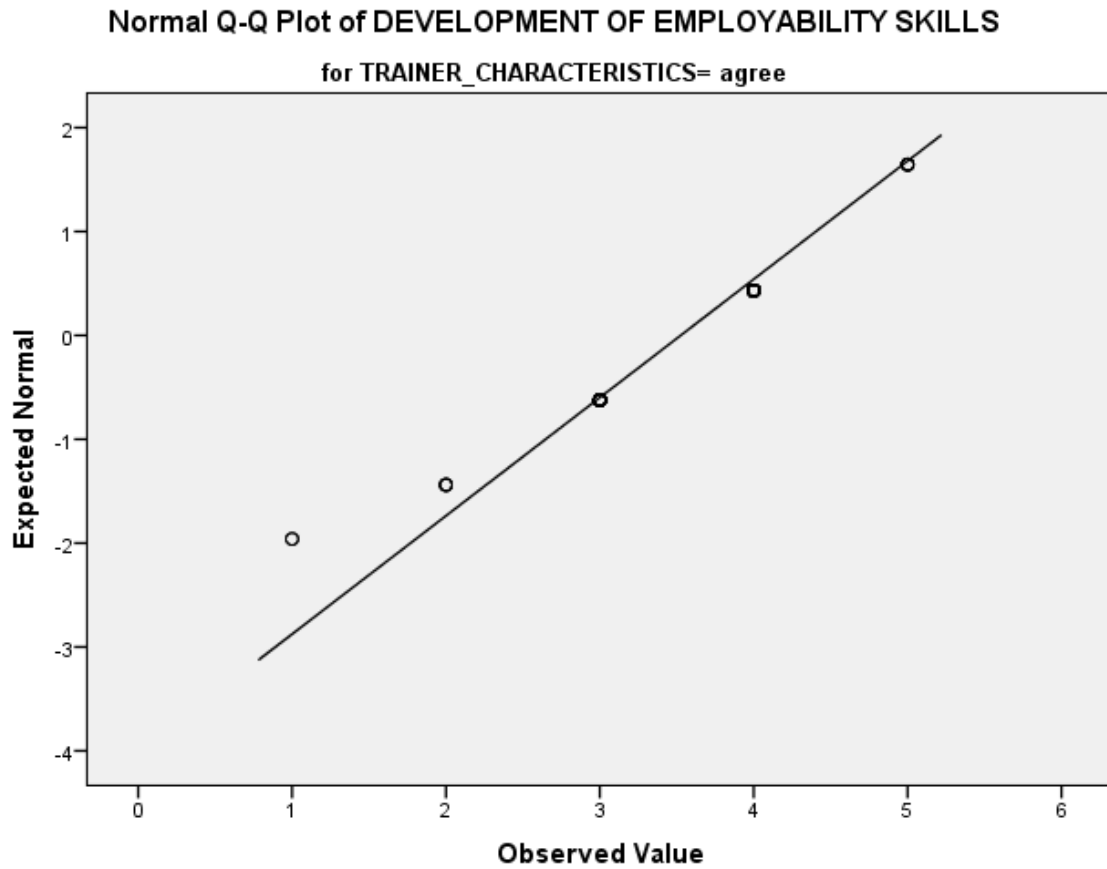
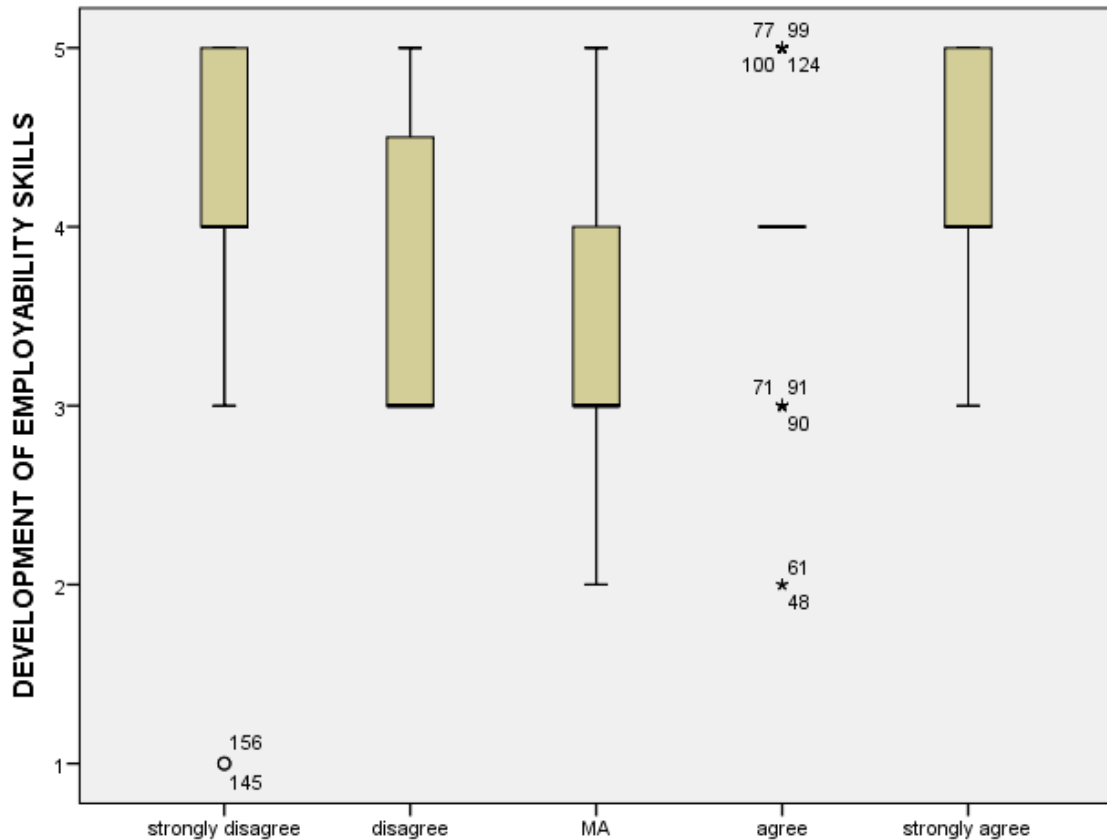


Figure 4.2's Q-Q plot results show that the data exhibits high linearity because there are very few spots on the plot that are not fitted along the line of best fit. As a result, it was determined that the data had a normal distribution. To ensure complete adherence to the normalcy assumption requirement, a box plot was also created. Figure 4.3 presents the findings.

**Figure 4. 3**

*A box plot on Development of Employability Skills of TVET Graduates*



The boxes for these variables appear relatively symmetrical, with medians close to the center. However, some outliers are visible, particularly for trainer characteristics. For industrial engagement: the box suggests a possible slight positive skew, with the tail extending a bit further to the right of the median. There are also some outliers on both ends. For personal attributes of TVET graduate, the box leans slightly towards a positive skew as well, with a longer tail to the right. There are outliers on both sides. There is a minor skewness in the data, as seen by the whiskers in the box plot shown in Figure 4.3. But the skewedness does not reveal a meaningful whisker deviation, indicating that the data was normally distributed.

#### 4.4.2 Linearity Test

ANOVA tests were carried on the institutional factors and moderating variable to assess the linearity assumption for the relationship between each and the development of employability skills among TVET graduates. The Table 4.7 presents the results

**Table 4. 7**

*Linearity Test*

			Sum of Squares	df	Mean Square	F	Sig.
Trainer_ Characteristics	Between Groups	(Combined)	11.782	3	3.927	5.784	0.001
		Linearity	3.387	1	3.387	4.988	0.027
		Deviation from Linearity	8.395	2	4.198	6.183	0.003
	Within Groups	113.388	167	0.679			
	Total	125.17	170				
			Sum of Squares	df	Mean Square	F	Sig.
Teaching-Learning Resources	Between Groups	(Combined)	21.38	4	5.345	8.549	0
		Linearity	18.616	1	18.616	29.774	0
		Deviation from Linearity	2.764	3	0.921	1.473	0.224
	Within Groups	103.79	166	0.625			
	Total	125.17	170				

			Sum of Squares	df	Mean Square	F	Sig.
Training Curriculum	Between Groups	(Combined)	25.735	4	6.434	10.741	0
		Linearity	7.808	1	7.808	13.035	0
		Deviation from Linearity	17.927	3	5.976	9.976	0
	Within Groups		99.434	166	0.599		
Total			125.17	170			
			Sum of Squares	df	Mean Square	F	Sig.
Industrial Engagement	Between Groups	(Combined)	43.834	4	10.959	22.366	0
		Linearity	40.915	1	40.915	83.506	0
		Deviation from Linearity	2.919	3	0.973	1.986	0.118
	Within Groups		81.335	166	0.49		
Total			125.17	170			
			Sum of Squares	df	Mean Square	F	Sig.
Personal Attributes	Between Groups	(Combined)	43.447	4	10.862	22.063	0
		Linearity	23.694	1	23.694	48.129	0
		Deviation from Linearity	19.753	3	6.584	13.374	0
	Within Groups		81.723	166	0.492		
Total			125.17	170			

ANOVA tables for the factors, we can assess the linearity assumption for the relationship between each factor and the development of employability skills among TVET graduates. Regarding trainer Characteristics, the significant p-value (0.027) for Linearity suggests a linear relationship. This implies that changes in trainer characteristics likely have a proportional effect on the development of employability skills. For example, a larger increase in trainer experience might lead to a correspondingly larger increase in graduates' skills. Therefore, linearity assumption is not violated.

Teaching-learning resources had a significant p-value (0.000) for Linearity indicates a linear relationship. This suggests that improvements in teaching-learning resources is likely have a direct and predictable effect on employability skills. Training Curriculum had a significant p-value (0.000) for Linearity indicates a linear relationship. This implies that changes in the training curriculum likely have a proportionate effect on employability skills. Modifying the curriculum to emphasize relevant skills might lead to a corresponding improvement in graduates' preparedness.

Industry Engagement posted a non-significant p-value (0.118) for Linearity suggests a potential violation of the linearity assumption. This indicates that the relationship between industry engagement and employability skills might be non-linear. There could be a threshold effect, where a certain level of industry engagement is needed to see a significant impact on skills, or the effect might diminish after a certain point. A significant p-value (greater than 0.05) suggests evidence for a linear relationship between personal attributes and development of employability skills. Overall, the ANOVA tables provide valuable insights into the potential linearity of relationships between institutional factors, moderating factor and development of employability skills.

### 4.4.3 Autocorrelation

One important metric for identifying autocorrelation in regression analysis and gaining insight into the model's validity is the Durbin-Watson statistic. The interpretations of the Durbin-Watson results are displayed in Table 4.8 in the context of the study variables, where the dependent variable is the development of employability skills and the independent variables are; trainer characteristics, teaching-learning resources, training curriculum and industrial engagement and moderating variable; personal attributes of TVET graduates

**Table 4. 8**

*Autocorrelation*

	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	Tool Used	N
	0.695	0.483	0.467	0.626	1.716	Trainees Tool	123
2	0.788	0.621	0.56	0.625	1.539	Trainers Tool	11
3	0.967	0.935	0.871	0.217	1.834	Graduates Tool	37

Table 4.8 shows Durbin-Watson values for each independent variable. The statistic close to 2 (around 2.0) in this study 1.716, 1.539 and 1.834 suggested no significant autocorrelation in the residuals. This indicate that the model's residuals are independent, and there was no auto correlation problem. It implied that the regression estimates derived from the model are reliable, and the model is valid for making inferences about the relationships between the independent and dependent variables.

#### 4.4.4 Multicollinearity Test Results

A statistical test called multicollinearity is used to determine whether two or more independent variables in a model have a high degree of correlation. Variance inflation factor and tolerance were investigated in this study, with Table 4.9 presenting the findings.

**Table 4. 9**

*Multicollinearity test for the Study Variables*

	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
Trainer Characteristics	0.729	1.372
Teaching-Learning Resources	0.696	1.438
Training Curriculum	0.580	1.725
Industrial Engagement	0.858	1.166
Personal Attributes	0.655	1.526

Table 4.9 indicates the Variance inflation factor (VIF) for trainer characteristics which is 1.372, teaching-learning resources is 1.438, training curriculum is 1.725, and industrial engagement 1.166 and personal attributes is 1.526. Variance when predictors are compiled, the inflation factor quantifies the increase in variance over the predicted regression coefficient. The acceptable threshold is that a VIF above 10 indicates a problematic level of multicollinearity. The result revealed that the study variables had no multicollinearity problem.

Tolerance is a reciprocal of VIF. A low tolerance value close to zero indicates high multicollinearity while tolerance level above 0.5 indicates low or no multicollinearity problem. The study results revealed a tolerance level of trainer characteristics 0.729, teaching-learning resources 0.696, training curriculum 0.580, and industrial engagement



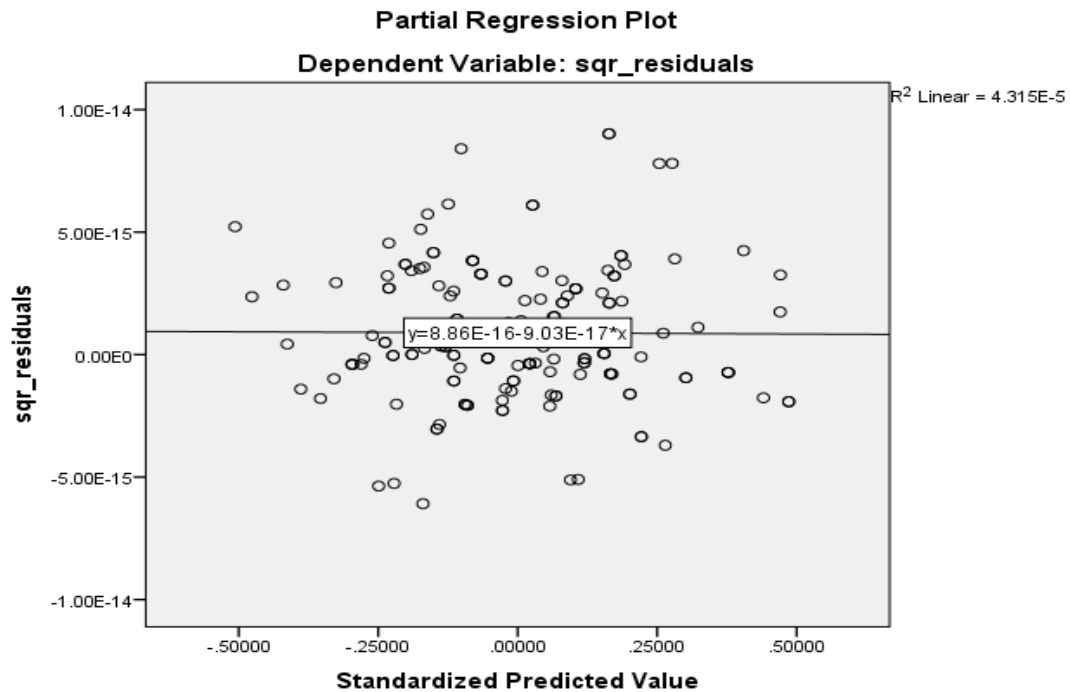
0.858 and personal attributes 0.655. Therefore, it was concluded that the study variables had no multicollinearity problem.

#### 4.4.5 Heteroscedasticity

Using the mean standardized residuals and the standardized projected residuals, a scatter graph was created to examine the data for heteroscedasticity conditions. It was determined whether the points in the scatter graph formed a recognized pattern. The results were shown in Figure 4.4.

**Figure 4. 4**

*Heteroscedasticity Test on Institutional Factors and Development of Employability Skills of TVET Graduates*



As one moves from left to right, the scatter points in Figure 4.4 show a random distribution without a discernible pattern. This indicates that the data does not exhibit heteroscedasticity. The predictor variables were regressed against the squared residuals to

test the null hypothesis that the data displays heteroscedasticity. The results are detailed in Table 4.10.

**Table 4. 10**

***Heteroscedasticity Test: ANOVA Results on the Squared Residuals Values***

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.584	5	.517	10.16	.993 <sup>b</sup>
	Residual	898.610	165	5.446		
	Total	901.194	170			

a. Dependent Variable: squared residuals

B. Predictors: (constant), scores: personal attributes of TVET graduate, scores: industry engagement, scores: teaching learning resources, scores: trainer characteristics, scores: training curriculum

According to Table 4.10, the P-value of 0.993, which exceeds 0.05, indicates that the null hypothesis suggesting heteroscedasticity in the data was not rejected. This led to the conclusion that the data did not exhibit heteroscedasticity. Since the data did not show any deviations from the aforementioned conditions (normality, linearity, autocorrelation, multicollinearity, and heteroscedasticity), parametric statistical tests were used to assess the overall objectives of the study and to test its hypotheses. The research hypotheses guided the evaluation of the research argument.

**4.5 Findings on the Development of Employability Skills of TVET Graduates**

The study sought to seek information on development of employability skills of TVET graduates which is a dependent variable. The focus was leadership skills, communication skills, team environment, and confidence, acquire problem solving skills and critical thinking. Rapid technological changes, globalization, and high levels of competition require those seeking for jobs and those already working to possess high employability

skills (Awodiji & Magodidi, 2023). The industry requires TVET graduates' skills in addition to academic qualifications; to have employability skills such as communication skills, team work, social skills, problem solving skills, interpersonal skills, creativity, technological skills, critical thinking and leadership (Awodiji & Magodidi, 2023; Muriuki & Dominic, 2022; Dean & East, 2019).

To accomplish this goal, both quantitative and qualitative data were gathered. Quantitative data was collected from trainees, trainers, and TVET graduates using both open-ended and closed-ended questionnaires. Qualitative data, following interview protocols, was obtained from Heads of Departments (HoDs), principals, and key informants. The interview schedules and responses from open-ended questionnaire items were coded, subjected to thematic analysis, and presented in narrative format. The dependent variable, the development of employability skills among TVET graduates, was comprehensively interpreted by initially presenting quantitative findings, followed by qualitative insights and a summary.

#### **4.5.1 Findings from Trainees in Regard to Development of Employability Skills**

Descriptive and inferential statistics are detailed in this section, focusing on critical thinking, problem-solving, confidence, teamwork, leadership, and communication. According to Mainga et al. (2022), trainees often lack awareness of employability post-graduation, the skills sought by companies, and methods to improve job prospects during their education. The questionnaire used a Likert scale with options ranging from strongly disagree to strongly agree. Table 4.11 presents the results.

**Table 4. 11*****Trainees' Response on Development of Employability Skills***

Development of Employability Skills N=123	SD	D	MA	A	SA	Mean	ST D.
My institution has done a lot in developing programmes that enhance my leadership skills	7(5.7)	22(17.9)	29(23.6)	40(32.5)	25(20.3)	3.44	1.167
my institution has done a lot in developing programmes that enhance my communication skills	13(10.6)	21(17.1)	33(26.8)	31(25.2)	25(20.3)	3.28	1.263
my institution is preparing me adequately to work in team environment after completing training	2(1.6)	14(11.4)	24(19.5)	44(35.8)	39(31.7)	3.85	1.048
TVET training is instilling confidence to enable me secure job	3(2.4)	6(4.9)	31(25.2)	49(39.8)	34(27.6)	3.85	0.96
TVET training is preparing me to acquire problem solving skills	4(3.3)	6(4.9)	23(18.7)	51(41.5)	39(31.7)	3.93	0.998
TVET training is preparing me to acquire critical thinking skills	3(2.4)	5(4.1)	18(14.6)	55(44.7)	42(34.1)	4.04	0.936

Table 4.11 shows trainees responses on development of employability skills. In regard to my institution has done a lot in developing programmes that enhance my leadership skills; 40(32.5%) agreed, 29(23.6%) moderately agreed, 25(20.3%) strongly agreed, 22(17.9%) disagreed and 7(5.7%) strongly disagreed. The mean being 3.44 suggest that the respondent took a more neutral position while others agreed with the statements. While a standard deviation of 1.167 showed that the responses are more consistent or clustered around the mean, indicating higher agreement or consensus among respondents. The results show 52.8% agreed programs had been developed by TVET institutions which enhance leadership skills. The results imply that, while there is a general recognition and appreciation of the institution's efforts in developing leadership skills, there is still a significant portion of the trainee population that remains unconvinced or neutral, indicating a need for continued evaluation and improvement of these programs. According to Hishamuddin and Shukor (2021), leadership is one of the outcomes of student development skill that teaching methods are required to achieve.

Regarding my institution has done a lot in developing programmes that enhance my communication skills; 33(26.8%) moderately agreed, 31(25.2%) agreed, 25(20.3%) strongly agreed, 21(17.1%) disagreed and 13(10.6%) strongly disagreed with a mean of 3.28 and standard deviation of 1.263. The standard deviation of 1.263 show that the findings were largely consistent. The results imply a need to incorporate more practical exercises, providing additional resources, or tailoring programs to better meet the needs of the trainees. A study by Nyongesa et al. (2022) found out that trainees' lacked training in communication skills. Similar finding by Fadhil et al. (2021) and Anindo (2016) established that employability was significantly connected with communication skill.

According to Othman et al. (2022), employability is significantly connected to communication skills. Through internships, discussions, group presentations and group projects in seminars and tutorials encourage the students to participate hence enhancing development of communication skills (Heron, 2019).

Further, in regard to my institution is preparing me adequately to work in team environment after completing training; 44(35.8%) agreed, 39(31.7%) strongly agreed, 24(19.5%) moderately agreed, 14(11.4%) disagreed and 2(1.6%) strongly disagreed. The findings show that majority (67.5%) of the respondents agreed the institution was preparing them to work in a team environment with a mean of 3.85 and a standard deviation of 1.048. It showed that responses were more consistent or clustered around the mean, indicating higher agreement or consensus among respondents. This implies, though trainees admit teamwork is important, majority prefer working alone according to a study by Chan and Pheng (2018), where a survey on student engagement insight showed 64% of undergraduates preferred working solo though they knew the importance of working as a team. The study equally indicated that the students had mixed feeling towards teamwork which agrees with this study where 32.5% were in the same category. According to Burris-Melville et al. (2023), this is attributed to mistrust, unaccountability, conflicts and absence of commitment. Though team work seems to be integrated in the curriculum, employers show dissatisfaction with graduates who are not prepared to function effectively in a team environment. According to Ochieng and Ngware (2021), soft skills such as team work are developed through extracurricular activities, which improve students' employment prospects. Trainees can practice teamwork skills through activities in the class or outside

the class. The ability to work with others well needs to be developed in the course of training as most employers seek employees who can work in a team.

Regarding TVET training is instilling confidence to enable me secure job; 49(39.8%) agreed, 34(27.6%) strongly agreed, 31(25.2%) moderately agreed, 6(4.9%) disagreed and 3(2.4%) strongly disagreed. A low standard deviation of 0.96 indicates more uniformity in responses. The results are in consistence with the mean of 3.85 suggests that respondents tended to agree with the statement or question. The study shows majority 67.5% of the trainees agreed TVET training was instilling confidence to enable them secure employment. Confidence is feeling sure of oneself and abilities. Confidence trusts that one's skills, knowledge and capabilities are good enough. Studies show that leadership skills (Gerhardt, 2019), team work skills (Chan & Pheng 2018), dual vocation system (Kenayathulla, 2021) and communication skills (Paolini, 2020) promote confidence among trainees. TVET institutions need to embrace programs and activities that boost trainee's self-confidence such as extracurricular activities, exchange programs, attachments and invitation of motivational speakers.

Further, in regards to TVET training is preparing me to acquire problem solving skills; 51(41.5%) agree, 39(31.7%) strongly agreed, 23(18.7%) moderately agreed, 6(4.9%) disagreed and 4(3.3%) strongly disagreed. The mean and standard deviation of the study were 3.93 and 0.998 respectively indicating high level of agreement with minimal variation. Majority of the respondents agree that TVET training is preparing them to acquire problem solving skills which are among the employability skills required in the labor market. The results imply that there is a high level of agreement among respondents, with minimal variation, that TVET training is effectively preparing them to acquire

problem-solving skills, which are essential for employability in the labor market. According to Yen et al. (2023), TVET trainees' use of problem-solving enables them to comprehend, analyze, and provide answers to challenges as they arise.

Similarly, regarding TVET training is preparing me to acquire critical thinking skills; 55(44.7%) agreed, 42(34.1%) strongly agreed, 18(14.6%) moderately agreed and 3(2.4%) strongly disagreed. Majority of the respondents 97(78.9%) agreed TVET training was preparing them to acquire critical thinking skills. The mean and standard deviation of 4.04 and 0.936 respectively suggests that respondents generally agreed with the statement and that responses were more consistent or clustered around the mean, indicating higher agreement or consensus among respondents.

The study's findings align with those of Chelimo et al. (2022), who reported that 56% of graduates, with a mean score of 3.76 and a standard deviation of 1.192, demonstrated critical thinking skills upon completing their studies. The use of critical thinking and problem-solving by trainees enables them to understand, analyze, and address challenges as they arise (Yen et al., 2023). Muriuki and Dominic (2022) further advocate for the development of critical thinking skills in technical training institutions to enhance employability.

#### **4.5.2 Findings from Trainers in Regard to Development of Employability Skills**

Descriptive and inferential statistics are provided in this section, focusing on initiatives aimed at enhancing critical thinking, problem-solving, confidence, teamwork, leadership, and communication. The questionnaire used a Likert scale ranging from strongly disagree to strongly agree. Table 4.12 displays the results.



**Table 4. 12*****Trainers Response on Development of Employability Skills***

Development of Employability Skills	SD	D	MA	A	SA	Mean	STD
N =11							
My institution has done a lot in developing programmes that will enhance graduates leadership skills	0	0	3(27.3)	2(18.2)	6(54.5)	4.35	0.919
My institution has developed programmes that will enhance graduate's communication skills.	0	0	2(18.2)	3(27.3)	6(54.5)	4.49	0.731
Do you feel that the TVET training has prepared your graduates adequately to work in teams?	0	0	2(6)	6(54.5)	3(27.3)	4.27	0.804
Do you have confidence in your graduates' ability to secure a job after completing TVET training?	0	0	1(9.1)	7(63.6)	3(27.3)	4.27	0.693
TVET training has prepared your graduates to acquire critical thinking skill problem solving skills?	0	0	3(27.3)	5(45.5)	3(27.3)	2.46	1.574

Table 4.12 shows trainers response on Development of Employability Skills. In regard to my institution has done a lot in developing programmes that will enhance graduates leadership skills; 6(54.5%) strongly agreed, 3(27.3%) moderately agreed, 2(18.2%) agreed with a mean of 4.35 and standard deviation of 0.919. This indicates a strong level of agreement, while a lower standard deviation suggests that responses are more uniform or

closely grouped around the mean, indicating greater consensus among respondents. This suggests that most TVET institutions offer programs that improve leadership skills among graduates. According to Kim and Wargo (2022), this trend can be linked to the increased inclusion of extracurricular activities such as sports, music, exhibitions, trade fairs, and field trips in TVET institutions. However, according to Montacute et al (2021), in United Kingdom; 24% of the students felt the courses offered in their university did not help them in developing leadership skills. Leadership skills are crucial in the ever-changing world in technology, information, competition and demands in the job market (Dean & East, 2019). According to Page (2021), leadership skills need to be developed when trainees are in the TVET institutions through assigning duties and responsibilities by the trainers. Leadership skills are on high demand and they help one to lead and guide others in the right direction to achieve the desired goals (Awodiji & Magodidi, 2023).

Regarding my institution has developed programmes that will enhance graduate's communication skills; 6(54.5%) strongly agreed, 3(27.3%) agreed and 2(18.2%) moderately agreed. The findings revealed a high mean of 4.49 and a standard deviation of 0.731, indicating that trainers generally agreed with the statement or question. A lower standard deviation suggests that responses are more consistent or closely clustered around the mean, indicating a strong consensus among respondents. This suggests that TVET institutions have implemented programs that improve graduates' communication skills. This could be attributed to the regular interaction between trainers and trainees in all institutional activities (Othman et al., 2022). Trainers use communication skills for instructional delivery and can assess the level of their trainees understanding. According to Sonnenschein and Ferguson (2020), communication skills can be developed through

internships, discussions, group presentations and group projects in seminars and tutorials where the trainers call and encourage the students to participate. Heron (2019) suggested trainers needed to develop their own communication skills in order to support development of the same in the trainees. Communication skills are essential for any graduate entering the job market and a graduate with good communication skills is more preferred (Graduate Career Australia, 2018). Though communication skills are part of course content in TVET institutions, studies by Jackson (2016), Clokie and Fourie (2016) and Sonnenschein and Ferguson (2020) show it is the least developed skill and is lacking in graduates. For increase in production and profitability, communication skills are critical in business thus employers prioritize it when recruiting new employees.

In regard to do you feel that the TVET training has prepared your graduates adequately to work in teams 6(54.5%) agreed, 3(27.3%) strongly agreed and 2(6%) moderately agreed. The findings show that trainers through TVET training adequately prepare the graduates to work in teams thus enhancing their employability as supported by a mean of 4.3 and a standard deviation of 1.077. The results imply that a significant majority of respondents believe that TVET training effectively prepares graduates to work in teams, as indicated by a high mean of 4.3 and a relatively low standard deviation of 1.077, thus enhancing their employability. The study findings are in agreement with Chelimo et al. (2022) study that 62% established effective collaboration with the trainers improved team work with a mean of 3.548. A study by Burris-Melville et al. (2023) found out that the respondents believed the trainers did not offer guidance on the skills needed to effectively work in a team. According to a study by Othman et al. (2022), team work skills is another vital employability skill that trainers should develop in their trainees as they prepare them for

future employment. Working in teams requires working in collaboration with other to achieve the set organizational goals (Chelimo et al., 2022). Team work skills cannot be underestimated in the industry due to working environments with diverse gender, racial, social, cultural, economic, educational and religious backgrounds (Yen et al., 2023). Trainers can use technology and diverse instructional methods to promote teamwork by allowing trainees to work on project in groups, formation of group discussions and doing practical as a group (Chepkoech et al., 2021). Employers prefer recruiting graduates with team work skills due to the cost involved in training teamwork skills later thus TVET institutions must deliberately include teamwork in the curriculum in order to develop team work skills among trainees and graduates.

In regards, to do you have confidence in your graduates' ability to secure a job after completing TVET training; 7(63.6%) agreed, 3(27.3%) strongly agreed and 1(1.9%) moderately agreed. The findings had a mean of 4.27 which indicate that respondents responded in affirmative to the sentiment with a standard deviation of 0.693. A lower standard deviation suggests that responses are more consistent or clustered around the mean, indicating higher agreement or consensus among respondents getting employment is the greatest goal of every trainee upon completing the training. This implies the respondents are certain that upon completing TVET training they will secure employment. The technical, theoretical and soft skills they get during TVET training gives them confidence that they will be ready for work. Studies by Kintu et al. (2019) show over 70% of the industry players seek for employees who portray confidence. According to Latif (2022), individuals can be ready for work if they have confidence in their abilities. During interviews, self-confidence significantly influences the recruiter's decision making.

Further, Musyimi (2021) notes provision of improved quality programs in TVET institutions enhances the trainees' confidence in them as they acquire employability skills. Other studies have established that effective instructional methods Akala and Changilwa (2018), career guidance and counseling Williams et al. (2018), extracurricular activities Othman (2022) and good curriculum Muriuki and Dominic (2022) can enhance confidence among the trainees.

Further, in regard to TVET training has prepared your graduates to problem solving skills and critical thinking. 5(45.5%) agree, 3(27.3%) strongly agreed and 3(27.3%) moderately agreed. The study found that a majority, 8(72.7%) of the respondents, agreed that TVET training prepared graduates for problem-solving and critical thinking skills. These findings are consistent with those of Chelimo et al. (2022), who reported that 56% of graduates, with a mean of 3.76 and a standard deviation of 1.192, demonstrated problem-solving skills upon completing their studies. This clearly reveals problem-solving skills and critical thinking developed during TVET training did not match with the industry demands. This study recommends further studies to establish whether TVET training prepares graduate for problem solving skills and critical thinking are recommended.

#### **4.5.3. Findings from Graduates in Regard to Development of Employability Skills**

This section represents descriptive and inferential statistics and focused on programmes that enhance leadership skills, communication skills, team environment, and confidence, acquire problem solving skills and critical thinking. The findings from studies by Nugraha et al. (2020) in Indonesia and Muriuki and Dominic (2022) in Kenya indicated that employable skills such as communication, teamwork, adaptability, problem-solving,

interpersonal skills, and leadership are crucial for TVET graduates and contribute to successful careers in their respective fields. The questionnaire employed a five-point Likert scale ranging from strongly disagree to strongly agree. Table 4.13 displays the results.

**Table 4. 13**

***Graduates' Response on Development of Employability Skills***

Development of Employability Skills of TVET Graduates	SD	D	MA	A	SA	Mean	STD.
N=68							
My institution did a lot in developing programmes that enhanced my leadership skills	0	8(11.8)	20(29.4)	15(22.1)	25(36.8)	3.84	1.060
My institution did a lot in developing programmes that enhanced my communication skills with coworkers and clients after training.	0	4(5.9)	0	25(36.8)	39(57.4)	4.46	1.038
My institution prepared me adequately to work in a team environment after completing training	5(7.4)	13(19.1)	16(23.5)	4(5.9)	30(44.1)	3.60	1.405
My institution instilled confidence in my ability to secure a job after	0	5(7.4)	6(8.8)	23(33.8)	34(50.0)	4.26	.908

completing TVET training								
The training in my institution prepared me to work independently?	0	5(7.4)	29(42.6)	4(5.9)	30(44.1)	3.87	1.078	
My institution's TVET training prepared me to have problem solving skills and critical thinking skills	5(7.4)	6(8.8)	4(5.9)	17(25.0)	36(52.9)	4.07	1.273	

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In regard to my institution did a lot in developing programmes that enhanced my leadership skills; 15(22.1%) agreed, 25(36.8%) strongly agreed, 20(29.4%) and moderately agreed. This means that respondents responded in affirmative to the assertion. The results imply that a substantial majority of respondents affirm that their institution developed programs enhancing their leadership skills. According to Awodiji and Magodidi (2023), many employers recruit graduates with a projection of making them future leaders in the organization, thus they look for people with or have potential leadership skills.

Further in regard to my institution did a lot in developing programmes that enhanced my communication skills with coworkers and clients after training; 25(36.8%) agreed, 39(57.4%) strongly agreed, 3while, 4(5.9%) disagreed. The mean and standard deviation are 4.46 and 1.038 respectively. The standard deviation of 1.038 indicates less variation of the responses. This study shows majority of the respondents agreed their institutions had developed programmes that enhanced communication skills as confirmed by the standard deviation. A similar study by Montacute et al. (2021) 62% of the graduates ascertained their university course helped them develop communication skills. This is contrarily to

studies by Jackson (2016), Clokie and Fourie (2016) and Sonnenschein and Ferguson (2020) that communication skills is part of course content in TVET institutions but it is the least developed skill and is lacking in graduates. In Australia, employers claim communication skills are important skills required by graduates if they are to be employable (Graduate Career Australia, 2018). Employability is significantly connected with communication skills and graduates who can communicate well are likely to get the jobs they want as well as helping the organization get more clients (Suleman et al., 2022; Fadhil et al., 2021).

Regarding my institution prepared me adequately to work in a team environment after completing training; 30(44.1%) strongly agreed, 4(5.9%) agreed, 16(23.5%) moderately agreed 13(19.1%) disagreed and 5(7.4%) strongly disagreed. The numbers of those who agreed to the statement was higher than those of contrary opinion. This implies that a graduate with the ability to effectively work with the team causes less or no trouble to the organization (Suleman et al., 2022). This agrees with the study by Othman et al. (2022) that teamwork skills are major employability skills which graduates require as employers consider them when recruiting new employees. Further studies Kornelakis and Petrakaki (2020) and Yen et al. (2023) established that employers are keen in recruiting employees who can work in a team. Team work increases productivity (Bhatt et al., 2022), motivates employees (Ugochukwu et al., 2020), leads to achievement of goals (Suleman et al., 2022) and enhances commitment to the organization (Hogan & Young, 2020). This study agreed that the institutions prepared the graduates adequately to work in a team environment but employers still complain the graduates don't have developed team work skills (King and King, 2021; Wilson, et al. 2018). According to Muriuki and Dominic (2022), putting



students in group work and team projects does not translate to development of team work skills that employers look for in graduates.

Regarding my institution instilled confidence in my ability to secure a job after completing TVET training; 34(50%) strongly agreed, 23(33.8%) agreed, 6(8.8%) moderately agreed and 5(7.4%) disagreed. These results show that majority of the graduates have confidence that they will secure a job. This implies the graduates have confidence in their strength and ability to carry out desired tasks and assignments. Having confidence in ones' abilities, competences and skills is an advantage in competing for employment. According to Tentama et al. (2019), the higher the graduates' confidence, the higher the work readiness.

Graduates with confident believes in their abilities, make independent and collaborative decisions, have positive attitudes towards self and dare to express opinions (Latif, 2022). Though the graduates' in this study believe they have confidence in their abilities, the industry players seek for self-confidence skills among others during recruitment which most candidates lack (Awodiji & Magodidi, 2023; Kamuhabwa, 2019).

The training in my institution prepared me to work independently; 30(44.1%) strongly agreed, 4(5.9%) agreed, 29(42.6%) moderately agreed, and 8(21.6%) disagreed. The mean of 3.60 suggests that respondents generally agree with the statement regarding critical thinking skills, with a standard deviation of 1.405 indicating that respondents' opinions about the statement vary moderately. Specifically, 36 (52.9%) strongly agreed, 17 (25%) agreed, 4 (5.9%) moderately agreed, 6 (8.8%) disagreed, and 5 (7.4%) strongly disagreed. This result implies that a graduate with the capacity to work efficiently under low pressure is a very valuable asset. Employees with problem solving skills can easily sort out problems

as they arise in the organization (Suleman et al., (2022). Graduate's initiative and self-drive result in the development of ideas, which in reality result in the flow of work. According to Labrovi et al. (2022), in Serbia suggested problem-solving abilities boosted graduate competitiveness in the IT and management industries. Further studies by Ochieng and Ngware (2021) and Kamuhabwa (2019) structural unemployment is attributed to lack of problem-solving skills.

#### **4.5.4 Qualitative Findings on Development of Employability Skills**

The research questions were important in informing the analysis of qualitative data gathered from interviews in this study. From the qualitative data provided by open-ended questionnaires from the trainees, trainers, and graduates, several major themes emerged regarding development of employability skills among TVET graduates. The major themes identified were; need for exposure to industry, modern equipment and tools for learning and the co-curricular activities such as drama to sharpen communication skills and build confidence.

Trainees, trainers and TVET graduates highlighted the importance of work-integrated learning and exposure to the industry as crucial factors in enhancing employability skills. This theme underscores the need for practical experiences and real-world exposure to complement theoretical knowledge gained in classrooms. By engaging in work-integrated learning opportunities and gaining exposure to industry practices, graduates can develop relevant skills and knowledge sought by employers.

Adequate resources and infrastructure play a vital role in enhancing employability skills. Respondents emphasized the importance of having modern practical tools and equipment,

access to mentors, installation of Wi-Fi, and adequate training facilities. These resources enable hands-on learning experiences, facilitate skill development, and create a conducive environment for practical training and mentorship. Further, on development of employability skills of the TVET graduates, qualitative data was collected from the HoDs, the principals and the key informants using the interview guides. The participants were asked how the TVET institutions prepared TVET graduates for competitive jobs and how TVET institutions are enhancing development of employability skills.

The following were the key themes that emerged from the all the sampled TVET institutions mainly from both the sampled HoDs and the Principals from TVI 1, TVI 2, TVI 4, TVI 5 and from the HoDs from TVI 3. Regarding how TVET institutions were preparing their graduates for competitive TVET jobs, the HoDS and the Principals said that they expose them to industry through internships and attachments. They also said that they expose them to modern equipment and tools early enough. Other aspects that came up were exposing them to Co-curricular activities such as drama to sharpen their communication skills and to encourage them to be involved in personal development, build and maintain professional networks through social media in order to stay updated on job opportunities and industry trends. They should also take leadership positions available in the Institutions.

One of the Principals said that *“I took it upon myself to make sure that I have mentored my student’s council because I know that leadership is not one day event. Leadership develops. Personally, I was a student leader back those days in the university and I was mentored to the position where I am currently. I normally invite the students council once per term for Principal’s dinner and we chat as we lay strategies for students and more so*

*on discipline and how to development of problem solving skills. Whe7n they go for internship, many companies want to retain them (P6 TVI 6).* The key informants also were asked what do they thought should be done to enhance the development of employability skills. The main themes that were found were that the graduate need to be prepared for the job market and should create more jobs, and embrace change. The themes emerged from K1 1, K1 2.

From the interviews, it is evident that to develop employability skills among the TVET graduates, the institutional leadership, the industry and the graduates need to work together to improve quality of training through industrial engagement, personal development and development of soft skills. Through this, it is possible to create a more responsive and effective system for developing employability skills, ultimately leading to improved outcomes for graduates and the economy as a whole. The Kenyan Vision 2030 prioritizes the development of entrepreneurial skills and competencies, establishing strong connections between education, training, and the labor market, and integrating sustainable practices into education and training through effective public and private partnerships (Government of Kenya, 2013).

#### **4.5.6 Integration of quantitative and qualitative findings development of employability skills TVET graduates.**

The study's dependent variable was the TVET graduates' development in employability skills. The convergent and divergent viewpoints were determined by integrating the quantitative and qualitative data. The parameters were; communication, problem solving, teamwork and leadership. Findings from the trainees, trainers and graduates, and from the themes emerging from interviews conducted among the HoDs, the

Principals and key informants, it was evident that communication, problem solving, teamwork and leadership were key employability skills among TVET graduates. There were no divergent views on development of employability skills among TVET graduates.

#### **4.6 Influence of Trainer Characteristics on Development of Employability Skills of TVET Graduates**

The aim of objective one was to assess how trainer characteristics influence the development of employability skills among TVET graduates in Meru County, Kenya. The objective focused on trainer level of education, knowledge and understanding, experience and attitude towards instructional delivery. Trainers being the major stakeholders in delivering technical, vocational and education training are tasked with delivering key skills to trainees and quality work force as development of employability skills falls upon them (Muriuki & Dominic, 2022). To achieve this objective, quantitative and qualitative data were collected. Quantitative data was collected among the trainees, the trainers, and TVET graduates using open and closed- ended questionnaires. Closed-ended questionnaires were analyzed using SPSS Version 29. Qualitative data was collected from the HoDs, Principals and key informants using interview guides. The responses from both the open- ended questionnaires and interview guides were coded and analyzed thematically and presented in narratives descriptions, quotes and excerpts.

#### **4.6.1 Findings from Trainees in Regard to Trainers' Characteristics**

The study aimed to explore trainees' perceptions of how trainer characteristics influenced the employability of TVET graduates. The focus was on the trainer's educational background in theory and practice, experience, subject matter expertise, and teaching philosophy. The questionnaire used a five-point Likert scale ranging from strongly disagree to strongly agree. Table 4.14 presents the results.

**Table 4. 14*****Trainees Response in Regard to Influence of Trainers' Characteristics***

Trainer Characteristics	SD	D	MA	A	SA	Mean	STD
N=123							
All my trainer's education level is adequate to handle both theory and practical	1(.8%)	1(.8%)	15(12.2%)	61(49.6%)	45(36.6%)	3.78	1.084
All my trainers are knowledgeable and understands the subject matter in handling both theory and practical	0	4(3.3%)	24(19.5%)	57(46.3%)	38(30.9%)	4.46	0.767
All my trainers are experienced and they understand the subject matter	1(.8%)	3(2.4%)	14(11.4%)	44(35.8%)	61(49.6%)	3.84	1.093
All my trainers have positive attitude towards instruction delivery in their area of training	2(1.6%)	1(.8%)	12(9.8%)	52(42.3%)	56(45.5%)	4.05	1.29

Trainees' responses on the influence of trainer characteristics on the development of employability skills among TVET graduates are presented in Table 4.14. Regarding the adequacy of the trainer's education level to handle both theory and practical aspects, 61 (49.6%) agreed, 45 (36.6%) strongly agreed, 15 (12.2%) moderately agreed, 1 (0.8%) disagreed, and 1 (0.8%) strongly disagreed. By combining all trainees who ticked strongly agreed and agreed 106(86.2%), it can be concluded that the trainer's education level was adequate to handle both theory and practical. This implies that the trainers recruited were qualified as per TVET Act of 2013.

In regard to all my trainers are knowledgeable and understand the subject matter in handling theory and practical; 57(46.3%) agreed, 38(30.9%) strongly agreed, 24(19.5%) moderately agreed and 4(3.3%) disagreed. This implies, majority 95(77.2%) agreed the trainers were knowledgeable and understood the subject matter. Further, regarding my trainers are experienced and understand the subject matter, 61(49.6%) strongly agreed, 44(35.8%) agreed, 14(11.4%) moderately agreed, 3(2.4%) disagreed, 1(0.8) strongly disagreed. The results show majority 105(85.4%) of the trainees agreed that their trainers were experienced and understood the subject matter. The study implies the trainers have knowledge in their area of specialization and could effectively guide, train and educate their trainees. UNESCO-UNEVOC (2020) established knowledgeable trainers are able to transfer knowledge and skills demanded by the industry. Muriuki and Dominic (2022) noted quality TVET education is determined by the quality of trainers, how knowledgeable they are and their subject matter mastery. This agrees with Latif (2022) that TVET trainers possess specific knowledge, skills and competences that prepare trainees for the world of work.



In regard to the statement, ‘all my trainers have positive attitude towards instruction delivery in their area of training’; 56(45.5%) strongly agreed, 52(42.3%) agreed, 12(9.8%) moderately agreed, 1(0.8%) disagreed and 2(1.6%) strongly disagreed. Majority 108(87.8%) of the trainees agreed that their trainers were positive towards instruction delivery. A good attitude is an inspiration to trainees, shapes learning experiences and creates a better learning environment. From the profile of the trainers in Table 4.3, majority 63.6% of the respondents were 30 years and below, thus having a job was already a motivation for them in this era of high unemployment rates. The results imply that an overwhelming majority 108(87.8%) of trainees perceive their trainers as having a positive attitude towards instruction delivery, which is inspirational and conducive to a better learning environment, particularly given that most trainers are young and motivated by employment in a challenging job market. TVET in India gives students the chance to learn for a lifetime and cultivates a positive outlook on life and the workplace, which improves their employability (Oviawe, 2020). The trainer’s attitude towards self and others are the elements that make a good trainer. Arthur (2022) indicated a poor teacher instructs, a good teacher explains, a superior teacher exhibits, and a great teacher inspires.

#### **4.6.2 Findings from Trainers in Regard to Trainers’ Characteristics**

The study sought to examine the trainers' response regarding how trainer characteristics influence development of employability skills of TVET graduates. The focus was on trainer’s level of education in handling their area of expertise in theory and practical; their knowledge and understanding of handling subject matter, experience and their attitude towards instructional delivery. A five Likert scale questionnaire including strongly

disagree, disagree, moderately agree, agree and strongly agree was used. Table 4.15 shows the results.

**Table 4. 15**

*Trainers’ response in Regard to the Influence of Trainers’ Characteristics*

Trainer Characteristics N=11	SD	D	MA	A	SA	Mean	STD
My education level is adequate to handle my area of expertise both in theory and practical	0	0	0	1(9.1)	10(90.9)	4.36	0.674
I am knowledgeable and understands the subject matter content in handling both theory and practical’s	0	0	0	1(9.1)	10(90.9)	4.18	0.603
I am experienced and I understand the subject matter	0	0	0	2(18.2)	9(81.8)	4.18	0.874
I have positive attitude towards instruction delivery in my area of training	0	0	0	1(9.1)	10(90.9)	4.18	0.751

The Likert scale responses of trainees about the impact of teacher qualities on the development of employability skills among TVET graduates are displayed in Table 4.15. Regarding my education level is adequate to handle my area of expertise both in theory

and practical; 10(90.9%) strongly agreed while 1(9.1%) agreed. Further, regarding I am knowledgeable and understands the subject matter content in handling both theory and practical's; 10(90.9%) strongly agreed while 1(9.1%) agreed. This shows that the trainers were able to equip the trainees with the necessary knowledge and skills required by the labor market. In regard to I am experienced and I understand the subject matter, 9(81.8%) strongly agreed while 2(18.2%) agreed. These findings and the findings concerning profile of the trainers in Table 4.3 reveal that 81.8% of the trainers were degree holders. This therefore implies that trainers have the necessary competences, skills knowledge and expertise to handle and tailor their instruction to meet the diverse needs of their trainees. According to Muchira et al. (2023), minimal use of practical component in the curriculum hinders acquisition of skills thus affecting the ability of graduates to secure employment. However, Sifuna (2020) argued TVET teacher training in Kenya does not provide adequate training in practical skills that TVET trainers are expected to teach. In Ghana, Kissi et al. (2020) equally investigated TVET institutions in Africa and discovered that the instructors' educational preparation was out of step with modern technological advancements, making it difficult for them to pass on their knowledge to the trainers.

Regarding having a positive attitude towards instruction delivery in the training area, 10 (90.9%) strongly agreed while 1 (9.1%) agreed. None of the respondents indicated moderately agree, disagree, or strongly disagree across all parameters. This indicates that trainers effectively foster a positive attitude among their trainees and graduates in their chosen career paths, significantly impacting their success. The results are supported by a mean of 4.18 and a standard deviation of 0.603. The higher mean suggests that respondents tended to agree with the statement, while the lower standard deviation indicates that

responses were more consistent or closely clustered around the mean, showing a high level of agreement or consensus among respondents. This is consistent with the findings of Kimathi et al. (2020), which established that trainers act as mentors and motivate graduates towards entrepreneurship, with a mean score of 4.90 on a Likert scale of 7. According to Yen et al. (2023), positive attitude assists the trainers to work well in challenging TVET working environment with balanced psychological and physical well-being. According to Mohamed (2022), a TVET program stands out due to its highly skilled, experienced, technically proficient, and passionate instructors who equip students with employable abilities. These instructors motivate their students to reach their greatest potential.

#### **4.6.3 Findings from Graduates in Regard to Trainers' Characteristics**

The purpose of the study was to investigate the graduates' perceptions of how trainer characteristics affect TVET graduates' capacity to develop employable skills. The emphasis was on the trainer's experience, attitude toward teaching delivery, knowledge and comprehension of the subject matter, and degree of education in managing the field in both theory and practice. To assess the data, descriptive statistics were applied. The outcomes are shown in Table 4.16.

**Table 4. 16*****Graduate response in Regard to Influence of Trainers' Characteristics***

Trainer Characteristics N=68	SD	D	MA	A	SA	Mean	STD
All my trainer's education level was adequate to handle their area of expertise in practical's	15(22.1)	4(5.9)	11(16.2)	18(26.5)	20(29.4)	3.35	1.514
All my trainer's education level was adequate to handle their area of expertise in theory	14(20.6)	8(11.8)	17(25.0)	5(7.4)	24(35.3)	3.25	1.549
All my trainers were knowledgeable and understands the subject matter in handling practical's	12(17.6)	16(23.5)	11(16.2)	5(7.4)	24(35.3)	3.19	1.557
All my trainers were knowledgeable and understands the subject matter in handling theory	15(22.1)	18(26.5)	6(8.8)	9(13.2)	20(29.4)	3.01	1.579
All my trainers were experienced and they understand the subject matter	9(13.2)	20(29.4)	10(14.7)	5(7.4)	24(35.3)	3.22	1.515
All my trainers had positive attitude towards instruction delivery in their area of training	0	14(20.6)	20(29.4)	14(20.6)	20(29.4)	3.59	1.123

The responses of graduates to a Likert scale regarding the impact of trainers' features on the development of employability skills for TVET graduates are displayed in Table 4.16. Responding to whether the trainer's education level was adequate to handle their area of expertise in practical, 20(29.4%) strongly agreed, 18(26.5%) agreed, 11(16.2%) moderately agreed, while 4(5.9%) disagreed and 15(22.1%) strongly disagreed. In regard to my entire trainer's education level was adequate to handle their area of expertise in theory; 24(35.3%) strongly agreed, 5(7.4%) agreed, 17(25%) moderately agreed, while 8(11.8%) disagreed and 14(20.6%) strongly disagreed. This implies that the trainers had adequate education to handle both practical and theory.

The findings are supported by the result in the profile Table 4.3 where majority (81.8%) of the trainers were found to be Bachelor degree holders. The results agree with European Commission (2018) that trainers teach both vocational and theoretical skills instilling employability skills to their trainees and graduates thus preparing them for the world of work. However, the study by Muriuki and Dominic (2022) discovered that poor training delivery resulted from inadequate planning and hiring of trainers, since TVET institutions lacked appropriately qualified trainers with the fundamental technical skills to operate training-related equipment and simple workshop machines. This was echoed by Ayonmike and Okeke (2020) study in Nigeria that found out majority of trainers in TVET institutions in Africa had challenges in conducting psychomotor tasks, such as operating machines.

Regarding whether the trainers were knowledgeable and understood the subject matter in handling practical, 24(35.3%) strongly agreed, 5(7.4%) agreed, 11(16.2%) moderately agreed, 12(17.6%) strongly disagreed while 16(23.5%) disagreed. The results indicate a mean of 3.19 and standard deviation 1.557. A higher standard deviation suggests that

responses are more dispersed or varied, indicating some notable variations in the responses. Regarding trainers being knowledgeable and understanding the subject matter in regard to handling theory, 20(29.4%) strongly agreed, 9(13.2%) agreed, 6(8.8%) moderately agreed, while 18(26.5%) disagreed and 15(22.1%) strongly disagreed. This shows majority of the graduates were torn between agreeing and disagreeing that the trainers were knowledgeable and understood the subject matter on handling theory. The result implies that trainers need to improve their competences by engaging in professional growth and pedagogical capacity. According to Akala and Changilwa (2018), trainers lack pedagogical capacity leading to inappropriate teaching and instructional methods.

In regard to trainers being experienced and understanding the subject matter; 24(35.3%) strongly agreed, 5(7.4%) agreed, 10(14.7%) moderately agreed, while 20(29.4%) disagreed and 9(13.2%) strongly disagreed. The findings contradict the results in Table 4.14 where 85.4% of the trainees agreed that trainers were experienced and understood the subject matter. However, according to Table 4.3 on profile of trainers this could be argued, that by the time the graduates were in TVET institutions, majority (72.7%) of the trainers, had an experience of less than 5 years. The results imply a divided perception among trainees about their trainers' experience and understanding of the subject matter, potentially due to the fact that the majority (72.7%) of trainers had less than five years of experience, despite previous findings showing higher overall agreement on trainer competency. A study by Gerritsen et al. (2016) on the effect of teacher quality on Dutch Twins' academic achievements established instructor experience increased student performance. According to Muriuki and Dominic (2022), it is believed that the quality of a product is determined by the producers' level of knowledge, skills and abilities thus, TVET trainees can only

have employable skills if the trainers have been adequately equipped with the right skills. A study by Ali et al. (2017) proposed that graduate employability and occupational knowledge are influenced by the trainer's skills and knowledge of the subject matter. Probably, in the course of searching for employment, the graduates were able to assess whether their trainers were experienced and understood the subject matter.

Regarding to whether the trainers had positive attitude towards instruction delivery in their area of training 20(29.4%) strongly agreed, 14(20.6%) agreed, 20(29.4%) moderately agreed and 14(20.6%) disagreed. The results imply the trainers had both intrinsic and extrinsic motivation that inspired the graduates. According to a study by Orangi et al. (2016), trainers need to be experts in their fields to articulate concepts clearly, inspire students, and foster meaningful learning engagement. Further, studies by Coballero et al. (2020) and Mainga et al. (2022) indicated that positive attitude was a growing attribute in graduate level employment as employers gave it a priority far ahead of certification or institution attended.

#### **4.6.4 Correlation results between Trainers' Characteristics and Development of Employability Skills of TVET Graduates**

The quantitative findings obtained from data collected from trainees, trainers, and graduates were used to test the null hypothesis. The first null hypothesis of the study posited that trainer characteristics do not influence the development of employability skills among TVET graduates in Meru County. Given the presence of a linear relationship in the data, a Pearson correlation was employed to examine the direction and strength of the relationship between trainer characteristics and the enhancement of employability skills



among TVET graduates. Summary findings derived from information provided by graduates, trainers, and trainees are presented in Table 4.17.

**Table 4.17**

*Correlation Test on Trainers' Characteristics on Hypothesis One*

Responses	Pearson correlation coefficient (r)	P-value	N
Trainees' response	0.199	0.02	123
Trainer response	0.559	0.07	11
Graduates' response	0.355	0.03	68

The association between employability skill development and trainer characteristics was examined using Pearson's correlation. A positive linear association was seen between the trainer characteristics and the development of employability skills, as indicated by the trainees' data, with a correlation of 0.199. The null hypothesis is supported by the p value of 0.02 which indicates that this association is statistically significant at the 0.05 level. These results indicate that the trainees perceived trainer characteristics enhance development of employability skills of TVET graduates. It therefore implies TVET institutions need to set and enforce standards for trainer qualifications ensuring that the trainers possess the necessary pedagogical skills, experience and expertise to effectively impart employability skills. This supports Mohamed's (2022) study, which found that highly skilled, experienced, technically proficient, and enthusiastic trainers equip learners with marketable talents.

A strong positive linear link was established with a Pearson's correlation coefficient of 0.559 for the trainer's data. At the 0.05 level, the link was not statistically significant, as

indicated by the p value of 0.07. This implies that though the trainers perceived their ability to adequately deliver competence, the trainees had a different opinion. Further, on graduates' tool, a Pearson correlation coefficient of 0.355 was found between trainer characteristics and development of employability skills indicating a positive linear relationship. The P-value of 0.03 suggest the correlation was statistically significant at a level supporting rejection of the null hypothesis. This implies graduates found trainer characteristics very essential in development of skills they require for the job market. It therefore means that TVET institutions need to collaborate with industries to align trainer competencies with industry needs. This would ensure employability skills taught are relevant and up to date.

In conclusion, the hypothesis stating that trainer characteristics do not influence the development of employability skills among TVET graduates was rejected. This indicates that the characteristics of trainers play a crucial role in enhancing employability skills among TVET graduates in Meru County. Therefore, policies should prioritize continuous professional development for trainers to keep them abreast of industry needs, utilizing teaching methodologies that align with industry demands (Kissi et al., 2020). Additionally, further qualitative analysis was conducted on open-ended questionnaire responses and interviews with principals, HODs, and employers, which helped triangulate the results.

#### **4.6.5 Qualitative Findings on Trainers' Characteristics and Development of Employability Skills of TVET Graduates**

In this section, data were collected from open-ended questions in questionnaires administered to trainees, trainers, and TVET graduates, as well as interview guides with

Heads of Department from the Departments of Business Management and Building and Civil Engineering, Principals of sampled TVET institutions, and key informants representing employers. Responses from both the open-ended questionnaires and interview guides were coded, thematically analyzed, and presented through narrative descriptions, quotes, and excerpts. The major themes that emerged included the necessity for trainers to have adequate education and experience to handle both theoretical and practical aspects, proficiency in subject matter, a positive attitude towards instructional delivery, and skills in handling modern equipment and tools.

Qualitative data collected from open-ended questionnaires from trainees, trainers, and graduates shed light on the significant influence of trainer characteristics on the development of employability skills among TVET graduates. Respondents were asked how they believed trainer characteristics influenced the development of employability skills among TVET graduates. Motivation and positive attitude emerged as the major theme. Trainers who exhibit motivation, positivity, and encouragement inspire students to excel in their studies and professional endeavors. In addition, trainers' depth of knowledge and expertise in practical and theoretical skills significantly contribute to students' preparedness for the workforce. Further, a theme of creativity, innovation, and exposure was found. Exposure to diverse fields, practical-oriented teaching, and fostering creativity and innovation broaden students' perspectives and enhance their adaptability.

Emphasis on professionalism, benchmarking against industry standards, and providing training, development, and mentorship opportunities instills a strong sense of professionalism and continuous learning. In regard to communication and teamwork; trainers who promote effective communication and teamwork skills enable students to

collaborate and work effectively in diverse team settings. Further in response to confidence and commitment; trainers who instill confidence and foster commitment empower students to tackle challenges and pursue their career goals with determination.

Respondents were also asked how trainer characteristics can be improved to influence employability skills among TVET graduates. Training and development emerged as the major theme. Providing continuous training and professional development opportunities for trainers to enhance their skills, knowledge, and teaching methodologies. This supports the findings of Muriuki and Muguti (2022) that in order for trainers to fulfill the always changing needs of both industry and trainees in the workplace, they must undergo training and retraining to update their skills and knowledge.

In this regard, the HoDs and Principals were asked which trainer's characteristics they looked for when recruiting trainers in TVET institutions. The HoD's and the Principals responded that they looked for a positive attitude, a trainer who is knowledgeable and experienced and one who has the right qualifications. They also added that they looked for a trainer who has good communication skills and is well versed in their area of specialization. In addition, they also looked for trainers who can motivate the trainees. One of the HoDs in the sampled institution had the following to say;

*As a HoD, I am usually present during the interviews when recruiting the trainers in my department. The key aspects that I look for are the right qualifications, experience, attitude, competence and knowledge in subject matter. I also look for someone with exposure to the industry. Today, soft skills really matter. During the*

*interviews, I even observe the interviewee as he /she enters the room and from there, I can tell a lot about the potential trainer. (H- BC- TVI 1 1)*

Further, the HoDs and the Principals were asked to give the ways the trainer characteristics in question 1 influences employability of TVET graduates. It was established that trainers with the desirable characteristics such as the trainer being an expert in subject matter in the area of specialization, having good work ethics and a trainer who will not skip classes will be able to impart skills and knowledge to the trainees hence enhancing employability skills of TVET graduates.

The HoDs and the Principals were further asked to give their opinion on what can be done to improve trainer characteristics to improve development of employability skills. They suggested that In-house training, capacity building, training on use of modern tools and equipment, and exposure to market trends through linkage to the industries would go a long way in enhancing trainer characteristics. In addition, aspects such as team building, motivation of trainers and attractive remuneration were strongly suggested to improve trainer's characteristics. This research supports the findings of Omar et al. (2020), who claimed that TVET trainers play a critical role in ensuring that trainees gain the skills required to fulfill industry demands because they impart information and transfer experience throughout induction and training. The study also concurs with UNESCO-UNEVOC (2020) and Muriuki and Muguti (2022) that the best TVET graduates are produced by the quality of training that their trainers receive; as a result, trainers require ongoing training to improve their skills and knowledge in order to meet the constantly changing needs of both industry and trainees in the workplace.

In a similar vein, the researcher aimed to ascertain the viewpoint of a few significant interviewees regarding the attributes of trainers that impact the acquisition of employability skills by TVET graduates. In their opinion, the trainers are supposed to be knowledgeable, with the right qualifications and experience to impart the trainees with requisite skills. They further suggested that the trainers need to have the right attitude towards work and should possess communication skills. One of the key informants from the sampled TVET institution pointed out that;

*A trainer needs to be very knowledgeable and this leads to better delivery of content.*

*These days, trainers are not role models and you cannot differentiate a trainer from a trainee. This is what I find very funny. As an employer, we need to see maturity in trainers and this is how they will influence the trainees (KI 4).*

The study also aimed to gather the opinions of key informants on strategies to enhance trainer characteristics for improving the development of employability skills among TVET graduates. Key informants highlighted the importance of trainers acquiring soft skills and upgrading to new and modern technologies. They emphasized the need for trainers to engage with industries where these modern technologies are employed. According to Muriuki and Muguti (2022), employers have consistently expressed dissatisfaction with the low-level employability skills of many TVET graduates from TVET institutions. Perhaps this is due to the rapid technological changes in the industry while TVET institutions are hesitant to pervade upgrade their technologies used in imparting these skills into prospective trainees.

#### **4.6.6 Integration of quantitative and qualitative findings on Trainer Characteristics and development of employability Skills TVET institutions**

In objective one, the quantitative and qualitative results were integrated and the convergence and divergent views were clearly established. The convergent views were; trainer's education level, trainer's experience and the positive attitude towards instructional delivery. The quantitative results agreed that trainers' education level was adequate to handle both theory and practical and the qualitative emphasized on what trainer characteristics and qualities the managers look for when hiring the trainers. TVET institutions have policies that guide on employment criteria of TVET trainers to ensure that they possess the necessary pedagogical skills, experience and expertise to effectively impart on employability skills. From the findings, the employment policy was adhered to.

However, there were divergence responses from the graduates concerning trainers being knowledgeable and understanding the subject matter in handling theory. In a 5-point Likert scale moderately agree had the highest percentage 16(43%). Moderately agree (MA) indicates a level of agreement that is neither strong nor weak. It suggests that the respondent leans towards agreement that trainers are knowledgeable and understands the subject matter in handling theory but not with full conviction. It can be argued that the graduates were biased against the trainers.

In objective one, there were both convergent and divergent views regarding the influence of trainer characteristics on development of employability skills of TVET graduates but the convergent views are more prominent.

#### **4.7 Influence of Teaching-Learning Resources on Development of Employability Skills of TVET Graduates**

The second objective set out to ascertain how teaching-learning resources affected TVET graduates in Meru County, Kenya, as they developed their employability abilities. The focus was on adequacy of physical infrastructure, tools and equipment for practical's, ICT infrastructure both hardware and software and technical support staff to assist the trainers during practical's. TVET training necessitates sufficient resources to produce market-ready trainees who meet industry requirements (Nathaniel, 2020). Both quantitative and qualitative data were collected to achieve this objective. Quantitative data from TVET graduates, trainers, and trainees was gathered through both open-ended and closed-ended questionnaires. The closed-ended questionnaires were analyzed using SPSS Version 29. Qualitative data, gathered from key informants, principals, and Heads of Departments (HoDs), was obtained using interview guides. The responses from both the open-ended questionnaires and interview guide responses were coded, subjected to thematic analysis, and presented in the form of narratives, quotes, and extracts.

##### **4.7.1 Trainees' responses in regard to influence of teaching-learning resources on development of employability skills of TVET graduates**

The study sought to examine the trainees' response regarding the extent to which teaching-learning resources influenced development of employability skills of TVET graduates in Meru County. The study focused on adequacy of physical infrastructure, tools and equipment for practical's, ICT infrastructure both hardware and software and technical support staff to assist the trainers during practical's. This section represents descriptive



statistics. A five Likert scale questionnaire including strongly disagree, disagree, moderately agree, agree and strongly agree was used. Table 4.18 presents the results.

**Table 4. 18*****Trainees' Responses in Regard to Teaching-learning Resources***

Adequacy of Teaching-Learning Resources N=123	SD	D	MA	A	SA	Mean	STD
My institution has adequate physical infrastructure such as workshops/ classrooms and Computer labs.	13(10.6)	21(17.1)	37(30.1)	27(22)	25(20.3)	3.33	1.245
My institution has adequate tools and equipment for practical's	19(15.4)	21(17.1)	27(22)	34(27.6)	22(17.9)	3.15	1.331
My institution has adequate ICT infrastructure both hardware and software.	13(10.6)	23(18.7)	23(18.7)	32(26)	32(26)	3.38	1.334
My institution has enough technical support staff to assist the trainers during practical's	14(11.4)	18(14.6)	21(17.1)	35(28.5)	35(28.5)	3.48	1.345

Table 4.18 presents the Likert scale responses of trainees regarding the impact of teaching-learning resources on the development of employability skills among TVET graduates. Regarding my institution has adequate physical infrastructure such as workshops/classrooms and Computer labs; 37(30.1%) moderately agreed, 27(22%) agreed, 25(20.3%) strongly agreed, 21(17.1%) disagreed and 13(10.6%) strongly disagreed. A slight majority of 52(42.3%) agreed, 34(27.7%) disagreed and 37(30.1%) moderately agreed that physical infrastructure was adequate indicating variation in responses. This implies, the TVET institutions have physical infrastructure but inadequate. The findings agree with the study by Muchira et al. (2023) that found 82.6% of the trainees required more facilities in the TVET institution. For any form of TVET program to be implemented successfully, adequate physical infrastructure is crucial.

Regarding the institution having adequate tools and equipment for practical, 34(27.6%) agreed, 27(22%) moderately agreed, 22(17.9%) strongly agreed, 21(17.1%) disagreed and 19(15.4%) strongly disagreed. In this study, 56(45.5%) of the respondents agreed the institutions had adequate tools and equipment, 27(22%) moderately agreed while 40(32.5%) disagreed. The variation of the responses is an indication that TVET institutions in Meru County have inadequate tools and equipment for practical. This means the trainees share the available tools and equipment or the trainers engage in theoretical means of instruction. The results imply that there is significant variation in perceptions among trainees, indicating that TVET institutions in Meru County likely have inadequate tools and equipment for practical training. This is consistent with a study by Nyongesa et al. (2022), in which 45.7% of respondents indicated that TTIs lacked the necessary tools and equipment, with a ratio of 1:5. The findings also align with a survey conducted in 2023 by

Muchira et al., which found that 91.3% of trainees requested current tools, and 82.6% of trainees needed more equipment for their training. According to Okolie et al. (2019), the primary goal of TVET institutions is to impart technical skills to trainees, preparing them for the workforce. Studies by Muchira et al. (2023) and Musyimi (2021) have shown that the provision of modern teaching and learning resources enhances the quality of programs in TVET institutions, thereby boosting trainees' confidence as they acquire employability skills.

In regard to my institution has adequate ICT infrastructure both hardware and software, 32(26%) strongly agreed, 32(26%) agreed, 23(18.7%) moderately agreed, 23(18.7%) disagreed and 13(10.6%) strongly disagreed. Majority, 64(52%) agreed their institutions had adequate ICT infrastructure while 26(29.3%) disagreed. The results imply that a slight majority (52%) of trainees believe their institution has adequate ICT infrastructure, though a significant minority (29%) disagrees, indicating mixed perceptions about the sufficiency of ICT resources. The finding agrees with the study by Chepkoech (2021) in Western Kenya where one ICT lab was being shared by 500 trainees. Use of technology is critical for acquisition of employability skills in the era of globalization, rapid technological changes and steep competition in the industry.

Further, regarding my institution has enough technical support staff to assist the trainers during practical's; 35(28.5%) strongly agree, 35(28.5%) agree, 21(17.1%) moderately agree, 18(14.6%) disagree and 14(11.4%) strongly disagree. Majority, 70(57%) agreed their institutions had enough technical support staff who assisted the trainers during practical. The results imply that a majority (57%) of trainees believe their institution has sufficient technical support staff to assist trainers during practical sessions, highlighting

the important role of technical staff in enhancing the quality and efficiency of practical training. Aboagye and Puoza (2021) established technical staff ensure that technical resources are up-to-date, functional, and readily accessible to trainers and students. The optimization of teaching resources according to Steurer et al. (2022) facilitates active learning, experimentation, and exploration, which are integral to developing problem-solving skills and adaptability in a professional context. Technical staff play a critical role in maximizing practical time and assisting trainers in delivering quality training.

#### **4.7.2 Trainers' responses in regard to influence of teaching-learning resources on development of employability skills of TVET graduates**

The study sought to examine the trainers' response regarding the extent to which teaching-learning resources influence development of employability skills of TVET graduates in Meru County. This focused on adequacy of physical infrastructure, tools and equipment for practical's, ICT infrastructure both hardware and software and technical support staff to assist the trainers during practical's. A five Likert scale questionnaire including strongly disagree, disagree, moderately agree, agree and strongly agree was used. Table 4.19 presents the results.

**Table 4. 19*****Trainers' responses on teaching-learning resources***

Adequacy of Teaching-Learning Resources N=11	SD	D	MA	A	SA	Mean	STD
My institution has adequate physical infrastructure such as workshops/ classrooms and Computer labs.	0	0	1(9.1)	5(45.5)	5(45.5)	4.36	0.674
My institution has adequate tools and equipment for practical's	0	0	1(9.1)	7(63.6)	3(27.3)	4.18	0.603
My institution has adequate ICT infrastructure both hardware and software.	0	1(9.1)	0	6(54.5)	4(36.4)	4.18	0.874
My institution has enough technical support staff to assist the trainers during practical's	0	0	2(18.2)	5(45.5)	4(36.4)	4.18	0.751

Table 4.19 shows trainers responses obtained from a Likert scale on teaching-learning resources influence development of employability skills of TVET graduates. Regarding my institution has adequate physical infrastructure such as workshops/ classrooms and Computer labs; 5(45.5%) strongly agreed, 5(45.5%) agreed and 1(9.1%) moderately agreed. Majority 10(90.9%) of the trainers agreed their institutions had adequate physical infrastructure such as workshops/ classrooms and Computer labs required to equip trainees with relevant skills. The results imply that a significant majority (90.9%) of trainers perceive their institution as having adequate physical infrastructure, including workshops, classrooms, and computer labs, essential for equipping trainees with relevant skills. However, AfDB (2022) established inadequate and insufficient infrastructure was major constraint in quality and quantity development of employability skills of TVET graduates. Similarly, regarding my institution has adequate tools and equipment for practical's; 7(63.6%) agreed, 3(27.3%) strongly agreed and 1(9.1%) moderately agreed. This disagrees with the study by Nyongesa et al (2022) that established TTI institutions did not have adequate tool and equipment where majority 28.99% gave an equipment ratio of 1:5 and another 28.99% give a ratio of 1:4 while the acceptable ratio is 1:3. Further research by Kigwilu and Akala (2017) and Mulenga and Chileshe (2020) in Zambia discovered that TVET institutions lacked the infrastructure and contemporary tools needed to provide trainees with the necessary skills. Training equipment and tools are essential for instructional delivery and skills acquisition thus when they are unavailable and inadequate, the skills required by the industry cannot be acquired. This leads to skill gap.

In regard my institution has adequate ICT infrastructure both hardware and software; 6(54.5%) agreed, 4(36.4%) strongly agreed and 1(9.1%) disagreed. This agrees with the results of Table 4.18 where 52% of the trainees agreed their institutions had adequate ICT infrastructure. This implies TVET institutions are embracing use of technology in theory and practical to keep pace with technological changes in order to remain relevant to the industry. The results however differ Maingi (2019) studies that found majority of the training tools used at TVETs were technologically incompatible with tools used in businesses and other organizations. Muriuki and Dominic (2022) equally established the state of training technology in TVET institutions was obsolete and were rarely used in the industry thus making taught abilities and skills less relevant to market skill requirements. TVET institutions need to investment on modern digital infrastructure ensuring stable electricity, adequate internet connectivity, and adequate computers for maximum acquisition of digital skills by trainees to improve the quality of graduates produced.

Regarding my institution has enough technical support staff to assist the trainers during practical's; 5(45.5%) agreed, 4(36.4%) strongly agreed and 2(18.2%) moderately agreed. Technical staff assist in the setting up equipment, troubleshooting technical issues, and ensuring that practical sessions run smoothly. The results imply that a majority (81.9%) of respondents believe their institution has sufficient technical support staff to assist trainers during practical sessions, highlighting the perceived importance and effectiveness of technical support in facilitating smooth training activities. This enhances the quality of hands-on learning experiences for students, which is crucial for developing technical skills and competence relevant to their future careers. Trainers can equally maximize their time on other activities that can lead to development of employability skills. According to



Aboagye and Puoza (2021), technical support staff help in the maintenance, organization, and utilization of teaching resources such as laboratory equipment, software programs, and multimedia tools.

#### **4.7.3 Graduates responses in regard to influence of teaching-learning resources on development of employability skills of TVET graduates**

The purpose of the study was to investigate how graduates felt about the impact of teaching-learning resources on TVET graduates' employability skills development in Meru County. The adequacy of physical infrastructure, tools and equipment for practical's, ICT infrastructure both hardware and software and technical support staff to assist the trainers during practical's were focus areas. Descriptive data are shown in this section. Strongly disagree, disagree, moderately agree, agree, and strongly agree were the five Likert scale options on the questionnaire. The outcomes are shown in Table 4.20.

**Table 4. 20*****Graduates' response on teaching-learning resources***

Adequacy of Teaching-Learning Resources	SD	D	MA	A	SA	Mean	STD
N = 68							
My institution had adequate physical infrastructure such as classrooms and Computer labs.	15(22.1)	4(5.9)	11(16.2)	18(26.5)	20(29.4)	4.22	.975
My institution had adequate tools and equipment for practical's	12(17.6)	16(23.5)	11(16.2)	5(7.4)	24(35.3)	4.09	.842
My institution had adequate ICT infrastructure both hardware and software.	15(22.1)	18(26.5)	6(8.8)	9(13.2)	20(29.4)	3.75	1.189
My institution had Computer virtual labs for trainers and students	9(13.2)	20(29.4)	10(14.7)	5(7.4)	24(35.3)	4.09	.973
My institution had enough technical support staff to assist the trainers during practical's	0	14(20.6)	20(29.4)	14(20.6)	20(29.4)	3.46	1.177

Table 4.20 shows graduates responses obtained from a Likert scale on teaching-learning resources influence development of employability skills of TVET graduates. In regard to my institution had adequate physical infrastructure such as classrooms and computer labs; 20(29.4%) strongly agreed, 18(26.5%) agreed, 11(16.2%) moderately agreed, 4(5.9%) disagreed and 15(22.1%) strongly disagreed. The findings imply that most (55.9%) of the institutions had adequate physical infrastructure such as classrooms and computer labs.

Regarding my institution had adequate tools and equipment for practical's; 24(35.3%) strongly agreed, 5(7.4%) agreed, 10(14.7%) moderately agreed, 20(29.4%) disagreed and 9(13.2%) strongly disagreed. An equal number 29(42.6%) of the respondents agreed and disagreed that the institutions had adequate tools and equipment for practical with a mean of 4.09. The standard deviation of .973 show a low variation of responses in regard to adequate tools and equipment for practical. The findings of the study reveal that physical infrastructure, tools and equipment were available but inadequate in TVET institutions in Meru County. This implies, technical trainers are limited in the use of demonstration method of instruction without adequate workshop tools and equipment. According to Audu (2013), it is impossible for the trainees to acquire training that fits the requirements for employment in the industries due to a shortage of workshop tools and equipment in the institutions. In addition, Ayonmike and Okeke (2017) noted TVET graduates were being turned down by employers because they had received incorrect kind of training in schools thus lacked practical experience, making them unable to meet market expectations.

Regarding the institution having adequate ICT infrastructure both hardware and software; 20(29.4%) strongly agreed, 9(13.2%) agreed, 6(8.8%) moderately agreed, 18(26.5%) disagreed and 15(22.1%) strongly disagreed that the institutions had adequate ICT

infrastructure. Majority (48.6%) of the respondents indicated TVET institutions did not have adequate ICT infrastructure both hardware and software. Similarly, the statement on my institution had computer virtual labs for trainers and students; 24(35.3%) strongly agreed, 5(7.4%) agreed, 10(14.7%) moderately agreed, 20(29.4%) disagreed and 9(13.2%) strongly disagreed. The findings mean that, in TVET institutions, computer virtual labs were available but inadequate. The results imply that while some respondents acknowledge the presence of computer virtual labs in TVET institutions, a significant portion perceives them as inadequate, indicating a need for improvement or expansion in virtual lab resources. Omotayo and Collen (2023) state that TVET graduates need ICT skills to improve their employability since they will need to work with new technologies and the quickly evolving technology. ICT use in China has raised the caliber of TVET training and education, claims Maruyama (2020). It can be concluded in this study that ICT infrastructure and computer virtual labs in Meru County TVET institutions are available but inadequate.

Regarding my institution had enough technical support staff to assist the trainers during practical's; 20(29.4%) strongly agreed, 14(20.6%) agreed, 20(29.4%) moderately agreed, and 14(20.6%) disagreed. The results show a slight variation of responses on TVET institutions having enough technical staff as indicated by mean of 3.46 and a standard deviation of 1.177. With sufficient technical support staff, trainers can focus more on delivering practical sessions effectively. Technical support staff play a key role in integrating technology into teaching and learning processes. The results imply that there is moderate agreement among respondents regarding the adequacy of technical support staff in TVET institutions, suggesting a need for consistent support to enhance the effectiveness

of practical training sessions and technology integration. Steurer et al. (2022) indicated technical support staff assist trainers in leveraging educational technologies, online platforms, and digital resources to create interactive and engaging learning environments. By incorporating technology effectively, students develop digital literacy, communication skills, and the ability to collaborate in virtual settings, which are essential for successful development of employability skills (Woodard, 2018).

The findings of this study are in agreement with other studies by Muchira et al. (2023), Muriuki and Dominic (2022), AfDB (2022), Chepkoech (2021), Kibwami (2021) and Kigwilu and Akala (2017) that TVET institutions have inadequate infrastructure, tools, resources and equipment for learning. Availability and adequacy of tools, resources, and equipment for learning ensures the success of any educational system by facilitating high-quality instruction and curriculum implementation.

#### **4.7.4 Correlation Findings between Teaching-Learning Resources and Development of Employability Skills of TVET Graduates**

The quantitative findings derived from the data collected from trainees, trainers, and graduates were utilized to evaluate the null hypothesis. The study's second null hypothesis is that teaching-learning resources have no effect on TVET graduates in Meru County's development of employability skills. The direction and strength of the link between employability skill development and teaching-learning resources among TVET graduates were examined using a correlation test. To determine whether to conduct a hypothesis test and to assess the linear relationship, Pearson's correlation test was used. The outcomes are shown in Table 4.21.

**Table 4.21*****Correlation Coefficient on Teaching-Learning Resources on Hypothesis Two***

Responses	Correlation coefficient(r)	P-value	N
Trainees' response	0.467	0.00	123
Trainer response	0.616	0.04	11
Graduates' response	0.402	0.021	68

To assess the trainees, trainers and graduate's views regarding hypothesis two, to investigate the connection between employability skill development and teaching-learning resources, Pearson's correlation analysis was performed. A positive linear link was indicated by a Pearson correlation coefficient of 0.467 obtained from the trainee tool. The null hypothesis is supported in its rejection when the correlation is statistically significant at the 0.05 level, as indicated by a p-value of 0.00. Development of high-quality skills needed by the industry require appropriate modern training tools and equipment, adequate training materials, relevant textbooks and training manuals and practical by the trainees (Nathaniel, 2020; Muriuki & Dominic, 2022). This suggests that in order to close the gap between TVET education and industry demands, the government must allocate more money to the institutions.

A strong positive linear link was established, with a Pearson's correlation of 0.616, from the trainer's tool. The correlation is statistically significant at the 0.05 level, as indicated by a p-value of 0.04, which supports the rejection of the null hypothesis. A significant link is implied by the statistical significance of the P-value being less than 0.05. This suggests that students have a tendency to build their employability skills more as teaching-learning resources get better. Given that trainers are directly involved in teaching trainees skills on

a daily basis and that the availability of teaching-learning resources has a substantial impact on their capacity to convey information, it is possible that this is the case based on their observations. Scatter plot was also carried to visually represent the relationship. It was found that the points on the scatter tended to cluster around the line. The results are appended in the appendix section of this document the  $P < 0.05$  suggested that the relationship was statistically significant.

Using the graduate's data a Pearson correlation coefficient of 0.402 was found between teaching-learning resources and development of employability skills indicating a positive relationship. The value of 0.021 at 0.05 level suggested that the correlation was significant implying that graduates viewed teaching-learning resources as critical in developing employability skills. Availability of up-to-date industry relevant teaching-learning resources ensure TVET programs align to current needs of the employers and enhances creativity, problem solving and innovation among TVET students' skills which are highly required by employers. This helps to prepare the graduate to work in a diverse work environment by simulating a dynamic learning environment which trainees may encounter in the real workplace (Ramnund-Mansingh & Reddy, 2021).

In summary the hypothesis that stated that teaching-learning resources do not influence the development of employability skills among TVET graduates was rejected. There is a clear indication that most TVET institutions in Meru County lack modern up-to-date, teaching-learning resources, physical infrastructure, tools and equipment which significantly hamper development of employability skills among TVET graduates. This agrees with Mulenga and Chileshe (2020) study that TVET institutions did not have adequate teaching-learning resources for practical training to acquire the skills and competences required by

the industries. Development of high-quality skills needed by the industry require appropriate modern training tools and equipment, adequate training materials, relevant textbooks and training manuals and practical by the trainees (Nathaniel, 2020; Muriuki & Dominic, 2022). This suggests that funding should be set aside by the government to close the knowledge gap between TVET programs and business demands. To further aid in triangulating the results, a further qualitative analysis was conducted on open-ended questions from the questionnaires as well as interviews with principals, HODs, and employers.

#### **4.7.5 Qualitative Findings on Teaching-Learning Resources and Development of Employability Skills of TVET Graduates**

Teaching-learning resources are essential to any educational setting. For this reason, the researcher used open-ended questions to ask participants how they believed the availability and suitability of teaching-learning resources affected the development of employability skills in TVET graduates. The themes that came out were; inadequate physical resources such workshops and laboratories, inadequate equipment for practical, availability of computer laboratories but absence of computer virtual labs and inadequate trainers and technical support staff.

Based on the number of trainees in each department, the researcher aimed to determine whether the teaching resources were sufficient and whether they were available in the departments through the interviews. In response, it was stated that there weren't enough teaching and learning materials. Using open-ended questions, qualitative data was gathered from graduates, trainers, and trainees. About how they believe the accessibility and quality of teaching and learning materials affect the way TVET graduates improve their employability skills? This is what Trainer 8 said; *“Much time is lost in trying to improvise*



*and also trainees are disjointed with the learning environment of the institution* “(Trainer 8). In addition, a few samples of the qualitative data from graduates implied that teaching-learning resources are very vital in the development of employability skills. Further, on the same question, from open ended questions, graduates responded that;

*‘Lack of teaching-learning materials for practical lessons makes the TVET graduate not competent or don’t fit in the job market’, ICT infrastructure is crucial to keep the TVET graduate up to date with the current technology” (graduate 3).*

*“With available and adequate resources, they help equip the learners with knowledge even after schooling” (graduate 5)*

The Heads of Department from the Department of Business Management and Building and Civil Engineering, Principals of the sampled TVET institutions were also asked whether teaching-learning resources were available and adequate. What ways they thought the availability and adequacy of teaching-learning resources influenced development of employability skills of TVET graduates and what would be done to improve availability and adequacy of teaching-learning resources in order to increase development of employability skills. The interview questions probed for the availability and adequacy of physical, ICT and human resources that included both trainers and technical staff. On physical resources, the HoDs and the Principals reported that the resources that were available were namely; workshops for building and construction department which were found in all the sampled institution (TVI 1, TVI 2, TVI 3, TVI 4, TVI 5 and TVI 6) The workshops were equipped with old equipment’s that were not adequate especially in TVI 1, 3, 5, and 6. Only in TVI 2 and 4, where the workshops were equipped with modern equipment and which were adequate. ICT infrastructure such as computers were available

in all the institutions. In TVI 1,2,3 and 4 they had about 100 computers in one computer laboratory which were used by the trainees and young people in the neighborhood for Jitume project but computers were shared in TVI 5 and the institution was not connected to the internet hence connectivity was very poor. One of the Principals had the following to say on physical infrastructure in building and construction.

*“Our building and construction workshop is well quipped. We thank God that we got the equipment from one organization in Canada called Colleges and Institutes Canada (CICan) who were running a project to assist the TVET institutions in Kenya to construct and equip their workshops. Haa-aa (laughing) when my trainees found this equipment, they told me “Principal, no more getting tired again mixing cement and sand using a manual mixture. The modern one is now here, we will now be doing our work faster” (P- TVI 2)”.*

The interview reports indicated that the sampled TVET institutions have inadequate facilities for their trainees. This implies that inadequate infrastructure in the TVET institutions will influence development of employability skills among TVET graduates. This agrees with AfDB (2022) that inadequate and insufficient infrastructure is a major constraint in quality and quantity development of employability skills of TVET graduates.

On availability and adequacy of academic and technical staff, the sampled institutions did not have adequate trainers and technical staff for the department of Building and Construction. In the Department of Business Management, which is basically a theory-oriented course, the HoDs and the principals reported that the classrooms were available and enough for their trainees. They also reported that the trainers were adequate to handle

their trainees. They did not require any technical staff and when needed, they outsourced from other departments such as ICT department.

The Key informants who represented the employers reported that the TVET institutions should strive to acquire adequate and modern training equipment for their trainees. In building and construction industry, modern equipment will save time for the worker and also do quality work. Using manual equipment is time consuming and tiresome. One of the Key informants said that;

*“There is need for training institutions to align their training with industrial advancements, the institutions should emphasize real-world simulations and practical training. Encourage collaboration between TVET institutions and employers through incentive programs and invest in modern technology and infrastructure to enhance resource quality”.*

Overall, the findings indicated that TVET graduates' development of employability skills is highly influenced by the availability and sufficiency of teaching-learning resources. Government funding and infrastructure development are crucial for ensuring access to modern tools, equipment, and technology. Quality learning materials, comprehensive coursework, and partnerships with industry enhance the relevance and applicability of skills. The results agree with the results of (Barasa &Kwasira, 2019) that adequate resources facilitate hands-on learning allowing graduate to acquire practical skills relevant to their career industries. The hands-on- experience helps them to quickly adapt to the new working environment. Further results by (Kigwilu & Akala, 2017), teaching-learning resources contribute to quality of instruction enabling effective delivery of course content

and retention of employability skills. Additionally, Ramnund-Mansingh and Reddy (2021) noted availability of up-to-date industry relevant resources ensure TVET programs align to industry needs.

#### **4.7.6 Integration of Quantitative and Qualitative Findings on Influence of Teaching-Learning Resources and Development of Employability Skills TVET Graduates.**

In objective two, the quantitative and qualitative results were integrated and the convergent and divergent views were pointed out. The convergent views were that the physical infrastructure such as classrooms and Computer labs, tools and equipment for practical, ICT infrastructure both hardware and software and Computer virtual labs for trainees and graduates were available but inadequate. However, the trainers had a divergent view indicating the teaching-learning resources were adequate. From the qualitative findings, it was evident that TVET institutions used old equipment and tools that were also inadequate. Other institutions reported having outdated and insufficient teaching-learning resources, with the exception of a small number of collaborations and partnerships that have provided some modern teaching and learning equipment, such as computers and building and construction equipment, as reported by one principal (P-TVI 2). The null hypothesis, according to which teaching-learning resources have no discernible impact on TVET graduates' development of employability skills, was refuted by the inferential analysis conducted for this purpose.

The p-values from the trainees, trainers and graduates (P-value 0.00, 0.04 and 0.021) respectively indicated high level of significance ( $<0.05$ ) thus rejecting the null hypothesis. This agreed with the qualitative findings regarding the influence of teaching learning

materials on the development of employability skills in TVET graduates. There were convergent opinions on objective two.

#### **4.8 Influence of Training Curriculum on Development of Employability Skills of TVET Graduates**

The third objective of this study was to investigate how training curricula influence the development of employability skills among TVET graduates in Meru County. The objective aimed to ensure that the courses were aligned with market needs, that trainers could adapt to industry demands, that instructional methods were effective, that trainers were accessible, that students acquired necessary skills, and that they had ample exposure to practical sessions.

To achieve this objective, both quantitative and qualitative data were collected. Quantitative data were obtained from trainees, trainers, and TVET graduates through open-ended and closed-ended questionnaires, analyzed using SPSS Version 29. Qualitative data were gathered through interview guides from Heads of Departments (HoDs), Principals, and Key Informants. Responses from both open-ended questionnaires and interview guides were coded, thematically analysed, and presented through narratives, quotes, and excerpts

##### **4.8.1 Trainees responses in regard to influence of training curriculum on development of employability skills of TVET graduates in Meru County**

The purpose of the study was to investigate how trainees felt about how much the training program influenced the TVET graduates in Meru County's capacity to find employment. This covered the courses' applicability to the labor market, the trainers' flexibility in responding to shifting demands and trends in the sector, the quality of the trainers'

instruction, their availability and accessibility, the acquisition of the necessary skills, and sufficient exposure to hands-on training. This section represents descriptive statistics. A five Likert scale questionnaire including strongly disagree, disagree, moderately agree, agree and strongly agree was used. Table 4.22 presents the results.

**Table 4. 2217*****Trainees' responses on training curriculum***

Training Curriculum N=123	SD	D	MA	A	SA	Mean	STD
My course is relevant to the job market.	0	0	11(8.9)	35(28.5)	77(62.6)	4.54	0.657
My trainers are able to adapt to changing needs of the job market and industry trends	0	2(1.6)	20(16.3)	38(30.9)	63(51.2)	4.32	0.803
My trainers' instructional methods are effective.	3(2.4)	13(10.6)	29(23.6)	39(31.7)	39(31.7)	3.8	1.079
My trainers are available and accessible	7(5.7)	7(5.7)	31(25.2)	44(35.8)	34(27.6)	3.74	1.1
I am attaining the required skills	6(4.9)	5(4.1)	29(23.6)	34(27.6)	49(39.8)	3.93	1.114
I am adequately exposed to practical sessions	2(1.6)	5(4.1)	16(13)	56(45.5)	44(35.8)	4.1	0.891

Table shows 4.22 responses by trainees on how training curriculum influence development of employability skills of TVET graduates. In regard to my course is relevant to the job market to enable me to acquire employment; 77(62.6%) strongly agreed, 35(28.5%) agreed and 11(8.9%) moderately agreed. Majority (91.1%) of the respondents agreed their courses were relevant to the job market. The mean of 4.54 suggest that respondents generally agreed with the statement and standard deviation of 0.657 a low suggesting that responses were more consistent or clustered around the mean, indicating higher agreement or consensus among respondents. This implies the respondents chose their courses fully aware of the future job aspiration, agreeing with Chepkoech (2021) study where 87% of the trainees agreed their courses were marketable and would enable them get formal employment. According to Okolie et al. (2019), courses and learning experiences offered in TVET institutions give trainees opportunities to acquire relevant skills that lead to employment. A quality curriculum should guarantee employability for trainees upon completion of their studies.

In regard to my trainers are able to adapt to changing needs of the job market and they are up-to-date on industry trends; 63(51.2%) strongly agreed, 38(30.9%) agreed, 20(16.3%) moderately agreed and 2(1.6%) disagreed. The results of the study show majority of the respondents 82.1% agreed their trainers were able to adapt to changing needs of the job market and they were up-to-date on industry trends. The results imply that a large majority (82.1%) of respondents believe their trainers are adept at adapting to the evolving needs of the job market and staying current with industry trends, which is crucial for ensuring relevance and quality in vocational education. However, the study by Okolie et al. (2020) in Nigeria discovered trainers lacked practical teaching expertise and heavily emphasized



on theory rather than practice yet the industry required graduates who were practical oriented. According to Muchira et al. (2023) and Republic of Kenya (2022), TVET curricula has not been relevant to the labor market leading to skill mismatch causing the employers to retrain the graduates.

In regard to trainers' instructional methods / instructional styles being effective, 39(31.7%) strongly agreed, 39(31.7%) agreed, 29(23.6%) moderately agreed, 13(10.6%) disagreed and 3(2.4%) strongly disagreed. According to this study 78(63.4%) agreed the instructional methods used by the trainers were effective. Use of various instructional methods by trainers influence development of technical skills, employability skill and personal attributes. The study agreed with Miyawa et al (2023) where trainers used various instructional approaches effective in training the trainees which included; 69.7% lecture methods, 93% demonstration methods, 78.8% project method, 84.9% experiment method, 84.8% out of class method, 42.5% trainer centered method and 84.9% student centered method. Nonetheless, the majority of trainees (74.3%) in the Nyangweso et al. (2022) research expressed dissatisfaction with their instruction.

Regarding my trainers are available and accessible for career guidance and counseling; 49(39.8%) strongly agreed, 34(27.6%) agreed, 29(23.6%) moderately agreed, 6(4.9%) strongly disagreed and 5(4.1%) disagreed. The study shows 83(67.4%) of the trainees agreed their trainers were available and accessible for career guidance and counseling. Negative perception on TVET education can be addressed through effective counselling, guidance and advisory services. In this study, the availability and accessibility of career guidance and counseling services implies trainers offer personalized guidance and counseling to trainees regarding career options, job search strategies, resume writing,

interview preparation, and professional development opportunities. Moore (2021) established such support helped trainees identify their strengths, interests, and career goals, empowering them to make informed decisions about their career paths. According to TVETA (2020), career guidance guides trainees towards choosing appropriate career paths and opportunities. Potential learners must first receive help and counseling in selecting training programs based on their aptitudes, academic background, professional goals, and industry requirements in order to ensure employability (Dawson, 2018). This is further emphasized by Williams et al. (2018) that career guidance and counselling begin from TVET entry by the trainee until they exit as graduates.

Regarding the statement, I am adequately exposed to practical sessions; 56(45.5%) strongly agreed, 44(35.8%) agreed, 16(13%) moderately agreed, 5(4.1%) disagreed and 2(1.6%) strongly disagreed. The results indicate 100(81.3%) of the trainees agreed they were adequately exposed to practical session. The results imply that a significant majority (81.3%) of trainees feel adequately exposed to practical sessions, suggesting that the practical components of their vocational education are perceived as sufficient and valuable. The findings, however, conflict with the research by Nyangweso et al. (2022), in which students expressed dissatisfaction with their education, exposing the trainers' qualifications. The findings also go counter to those of a study conducted in 2023 by Muchira et al., which discovered that a lack of practical experience in the curriculum had a detrimental impact on students' capacity to acquire new skills, which in turn hampered their employment after completing their TVET degrees. Studies UNESCO (2021), UNESCO-UNEVOC (2017) and Oviawe et al. (2017) showed the aim of TVET education was to develop skilled workers for the nation and to prepare youth for employment by

empowering them with employable skills that are responsive to the labor market in an ever changing technological and economic environment. This can be achieved by exposing the trainees to practical training and involvement in the industry. Trainees cannot be adequately exposed to practical session if TVET institutions have inadequate tools, equipment and infrastructure. The results differ with the results in Table 4.18 where the findings had a variation in the responses with 45.5% of the trainees agreed, 22% moderately agreed while 21.2% disagreed TVET institutions had adequate tools and equipment. The variation indicates that tools and equipment were available but inadequate. This leads to trainers engaging in theoretical means of instruction or sharing of the available tools and equipment.

#### **4.8.2 Trainers' responses in regard to influence of training curriculum on development of employability skills of TVET graduates**

This study aimed to investigate the trainer's response to the degree to which training curriculum influences TVET graduates in Meru County's development of employability skills. This covered the courses' applicability to the labor market, the trainers' flexibility in responding to shifting demands and trends in the sector, the quality of the trainers' instruction, their accessibility and availability, the acquisition of the necessary skills, and sufficient exposure to hands-on training. To attract available jobs in the market, TVET curriculum needs to be relevant and of quality as it influences employability. This section represents descriptive statistics. A five Likert scale questionnaire including strongly disagree, disagree, moderately agree, agree and strongly agree was used. Table 4.23 presents the results.

**Table 4. 23*****Trainers' responses on training curriculum***

Training Curriculum	SD	D	M/A	A	SA	Mean	STD
N=11							
My course is relevant to the job market to enable my graduates to acquire employment.	0	0	1(11.8)	2(17.6)	8(70.6)	4.59	0.712
I am able to adapt to changing needs of the job market and I am up-to-date on industry trends	0	0	0	7(64.7)	4(35.3)	4.35	0.996
My instructional methods / instructional styles are effective in helping my trainees.	0	0	0	5(47.1)	6(52.9)	3.71	1.404
I have the required skills and competencies needed to prepare my trainees for employment	0	1(11.8)	1(11.8)	3(23.5)	6(52.9)	3.88	1.269
My instructional methods / styles are effective in helping my trainees acquire and retain the content learnt	0	1(11.8)	2(17.6)	2(17.6)	6(52.9)	4	0.935
I adequately expose my trainees to practical sessions.	0	2(17.6)	1(11.8)	6(52.9)	2(17.6)	3.47	1.068

Table 4.23 shows responses by trainers on how training curriculum influence development of employability skills of TVET graduates. Regarding graduates acquiring employment; a vast majority 10(88.2%) strongly agreed that the curriculum helped graduates acquire employment. The high agreement implies that the curriculum is effective in equipping graduates with the skills needed for employment, indicating alignment with industry requirements. According to Muriuki and Dominic (2022), a good curriculum helps trainees to learn how to cope with challenges and prepares them for long life learning. However, it is important to continually assess and update the curriculum to ensure ongoing alignment with evolving industry demands

Regarding I am able to adapt to changing needs of the job market and I am up-to-date on industry trends a significant portion 4(35.3%) strongly felt they are able to adapt to changing job market needs and stay updated on industry trends while 7(64.7%) agreed. This indicates that the curriculum content is perceived to be appropriate and useful, contributing to the development of skills relevant to the job market. It implied that the trainers' ability to adapt and stay current with industry trends is crucial for ensuring that graduates are equipped with relevant skills. Continuous professional development programs may be beneficial for trainers to stay abreast of emerging trends. To the contrary, employers have sighted TVET curricula not to be relevant to the labor market leading to skill mismatch causing them to retrain the graduates once employed (Muchira et al., 2023; Republic of Kenya, 2022). To improve graduates' employability, soft skills as well as personal attributes must be incorporated to the curriculum.

In regard to my instructional methods /instructional styles are effective helping my trainees, a notable proportion 6(52.9%) strongly agreed, their instructional methods were effective while 5(47.1%) agreed. This implies on a need for further exploration into the types of instructional methods being used and their impact on learning outcomes. Incorporating diverse teaching strategies and leveraging technology may help improve content acquisition and retention. Nyangweso et al. (2022) the study indicated 55.1% a strong relationship of instructional methods and trainees skill development. This agrees with the study by Muyaka (2023) trainers used various instructional approaches effective in training where 69.7% agreed they used lecture methods, 93% demonstration methods, 78.8% method, 84.9% experiment method, 84.8% out of class method, 42.5% trainer method and 84.9% student centered method. Studies have revealed, however, that the majority of TVET instruction places a greater emphasis on academic and theoretical knowledge than on practical skills (Guardia et al., 2021; Hardin-Ramanan et al., 2020; Igwe et al., 2020; Lim et al., 2016; Zhang, 2015; Teng et al., 2019).

Regarding I have the required skills and competencies needed to prepare my trainees for employment, 6 (52.9%) strongly agreed, 3(23.5) agreed, 1(11.8) moderately agreed and 1(11.8) disagreed. A significant proportion 9(76.4%) believe they have the required skills and competencies to prepare trainees for employment. Though a majority felt adequately prepared, there is still a sizable portion that may require further development or training in specific areas. The results imply that while a significant proportion 9(76.4%) of respondents feel they have the necessary skills and competencies to prepare trainees for employment, there remains a notable segment that may benefit from additional development or training to enhance their preparation abilities. Muriuki and Dominic (2022)

assert TVET trainers should be supported to improve their capacity, subject matter knowledge as well as exposure to the latest industry trends and technologies. Investing in professional development opportunities for trainers can enhance their ability to prepare students for the workforce.

In regard to I adequately expose my trainees to practical sessions, while a majority 8(70.5%) agree, there's variability in responses regarding the adequacy of practical sessions with 17.6% strongly agreeing and 52.9 agreeing. However, there was a significant disagreement 2(17.6%) and 1(11.8%) moderately agreeing on exposure of trainees to practical sessions. This implies there was inadequate exposure of trainees to practical sessions which is key in enhancing hands-on skills development crucial for employability in many vocational fields.

In nutshell, the evidence points to generally favorable opinions of the training program's impact on TVET graduates' acquisition of employable skills. To further increase graduates' preparedness for the labor market, improvements might be made in a few areas, such as assuring the quality of practical sessions and including stakeholders more in curriculum creation. In order to adequately educate students for entering the workforce, Ahmad and Shah (2017) contend that curricula must be relevant to the labor market. TVET stakeholders, such as trainers, governments, and business leaders, work together to modify curricula and create regulations that support teamwork (Varghese & Khare, 2021). TVET institutions must adapt to the knowledge-based economy's dynamic business environment. Trainers are the main stakeholders in curriculum implementation. When they are not involved in the development of the curriculum, implementation becomes a challenge. Inadequate and unavailability of teaching and learning materials also hinders effective

implementation of the curriculum. Graduates need usable skills in the rapidly evolving job market, claims Kenayathulla (2021). They suggested national curriculum and qualification standards of the subject matter be revised by developers.

#### **4.8.3 Graduates' responses on how training curriculum influence development of employability skills of TVET graduates in Meru County**

The study aimed to investigate the graduates' perceptions of how much training curricula impact TVET graduates in Meru County's development of employable abilities. The areas of focus included course relevance to the labor market, trainers' adaptability to shifting demands from the labor market and industry trends, the effectiveness of their instructional methods, their availability and accessibility, the acquisition of necessary skills, and sufficient exposure to practical sessions. Descriptive data are shown in this section. Strongly disagree, disagree, moderately agree, agree, and strongly agree were the five Likert scale options on the questionnaire. The outcomes are shown in Table 4.24.



**Table 4. 24*****Graduates' responses on Training Curriculum***

Training Curriculum	SD	D	MA	A	SA	Mean	STD
N=68							
My course was relevant to the job market to enable me acquire employment	0	5(7.4)	11(16.2)	16(23.5)	36(52.9)	4.22	.975
My trainers were able to adapt to changing needs of the job market	0	0	21(30.9)	20(29.4)	27(39.7)	4.09	.842
My trainers were up-to-date on industry trends	4(5.9)	6(8.8)	16(23.5)	19(27.9)	23(33.8)	3.75	1.189
My trainers' instructional methods were effective in helping me acquire and retain the materials I was learning	0	6(8.8)	11(16.2)	22(32.4)	29(42.6)	4.09	.973
My trainers were available and accessible for career guidance and counseling before I started my course	6(8.8)	5(7.4)	24(35.3)	18(26.5)	15(22.1)	3.46	1.177
I was adequately exposed to practical sessions	0	9(13.2)	17(25.0)	5(7.4)	37(54.4)	4.03	1.159

Table 4.24 shows the response on how training curriculum influence development of employability skills of TVET graduates. In regard to my course was relevant to the job market to enable me acquire employment or be self-employed immediately after my graduation; 36(52.9%) strongly agreed, 16(23.5%) agreed, 11(16.2%) moderately agreed, and 5(7.4%) disagreed. This resonates with the findings of trainees on Table 4.22 where 77(62.6%) strongly agreed, 35(28.5%) agreed and 11(8.9%) moderately agreed that their courses were relevant to the job market to enable them to acquire employment. The results imply that a majority 52(76.5%) of graduates perceive their courses as relevant to the job market, facilitating their potential for immediate employment or self-employment upon graduation, though a minority still have reservations about the relevance of their education to employment prospects. Despite these results, the statistics from ILO (2021) established that majority (10.6 %) of youths were jobless.

According to a study by Boahin (2018) over 48% of the youths aged between 15-34 years in Ghana had no employment. Further, in Kenya, youths aged 13-35 years who were eligible to work and the most productive labor in the country stood at 13.84% (World Bank, 2021) and 13% (KHPC, 2019). This is an indication that the curriculum used in TVET institutions was not adequately addressing industry needs hence, increased skill gaps. Muriuki and Dominic (2022) suggested that employability skills be prioritized and integrated throughout the curriculum as a means of combating this. To guarantee that the market demands and competencies necessary for the labor market are addressed, the industry should be included in the curriculum's development and revision. According to Varghese and Khare (2021), curricula must be rigorous and updated frequently for graduates to be globally competitive.

Regarding my trainers were able to adapt to changing needs of the job market; 27(39.7%) strongly agreed, 20(29.4%) agreed, and 21(30.9%) moderately agreed. On trainers being up-to-date on industry trends; 23(33.8%) strongly agreed, 19(27.9%) agreed, 16(23.5%) moderately agreed, 6(8.8%) disagreed and 4(5.9%) strongly disagreed. The results show that the majority 47(69.1%) of the graduates agreed that the trainers adapted to the changing needs of the market and were up-to-date with the industry needs. This implies that trainers had firsthand knowledge and experience in their respective industries or fields of expertise. According to Ayonmike and Okeke (2020), trainers can help graduates build professional connections, explore career pathways, and stay informed about emerging opportunities and challenges in the job market by sharing industry insights, trends, and networking opportunities. In order to provide the skills that the sector requires, TVET quality and relevance must be ensured by trainers, according to UNESCO-UNEVOC (2020). According to Arif et al. (2021), in order to meet the 21st century competencies, trainers must be creative in the ways they teach and learn. Previous studies by Mwashinghadi and Kitainge (2023) and Anindo (2016) indicate most TVET institutions have inadequate trainers which may be contributing to skill gaps.

In regard to my trainers' instructional methods were effective in helping me acquire and retain the materials I was learning, 29(42.6%) strongly agreed, 22(32.4%) agreed, 11(16.2%) moderately agreed, and 6(8.8%) disagreed. The mean is 4.09 and standard deviation of 1.973, indicating variations in responses. Igwe et al. (2020) claim that the majority of TVET instruction is more academically oriented, emphasizing theoretical knowledge over practical learning in order to pass exams. Training focused on skills rather

than exams is advised. Research by Nyangweso et al. (2022) and Anindo (2016) demonstrated the importance of instructional strategies for skill development.

Regarding the statement, 'my trainers were available and accessible for career guidance and counseling before I started my course', 15(22.1%) strongly agreed, 18(26.5%) agreed, 24(25.3%) moderately agreed, 5(7.4%) disagreed and 6(8.8%) strongly disagreed that their trainers were available and accessible for career guidance and counseling before they started my course. The results had a mean of 3.46 and standard deviation of 1.177. The findings indicate that TVET graduates generally perceived the training curriculum as influential in developing employability skills. These results imply a positive overall perception but with some variability in responses. To enhance effectiveness, institutions should engage graduates for feedback, identify areas for improvement, and prioritize communication and engagement. Ongoing evaluation is crucial to ensure the curriculum meets graduates' needs and aligns with industry demands. Career guidance and counselling assists trainees and graduates in making educational and training choices as well as career choices.

In regard to I was adequately exposed to practical sessions; 37(54.4%) strongly agreed, 5(7.4%) agreed, 17(25%) moderately agreed, and 9(13.2%) disagreed that they were adequately exposed to practical session. The results show a high level of agreement to the assertion. The implications are that, while the mean score of 4.03 leans slightly towards a positive perception of practical session exposure, the standard deviation of 1.159 underscores the need for further investigation into the factors contributing to the variability in graduates' experiences and perceptions.

To identify areas for development and make sure that practical sessions effectively fulfill the needs of all students, this could involve obtaining extra input from graduates. The majority of graduates struggle to find work since their skills don't match. The industry does not require the abilities that are acquired in TVET institutions. The findings of Guardia et al. (2021) and Hardin-Ramanan et al. (2020), who discovered that the majority of TVET lectures were primarily focused on theoretical and academic knowledge at the expense of practical learning, are not consistent with our results. Mohammad et al. (2021) stated that the ongoing contacts between employers and graduates in their specific fields of emphasis continue to inform the curriculum's content recommendations. The effectiveness of trainers' teaching approaches obtained mediocre ratings (mean score of 3.83) in terms of quality of methods and assistance. This could be as a result of trainers lacking pedagogical capacity and inadequate resources (Akala & Changilwa, 2018).

#### **4.8.4 Correlation Findings between Training Curriculum and Development of Employability Skills of TVET Graduates**

The quantitative data collected from trainees, trainers, and graduates were used to test the null hypothesis of the study. The third null hypothesis posited that training curricula do not influence how TVET graduates in Meru County acquire their employability skills. The study employed a correlation test to examine the strength and direction of the association between the training program and the acquisition of employability skills by TVET graduates. Pearson's correlation test was used to assess the linear relationship and determine whether to proceed with hypothesis testing. The outcomes are shown in Table 4.25.

**Table 4. 25*****Correlation Coefficients on Training Curriculum on Hypothesis Three***

Responses	R	p-value	N
Trainees response	0.564	0.000	123
Trainer response	0.430	0.016	11
Graduates response	0.648	0.000	68

To assess the trainees, trainers and graduates responses regarding the influence of training curriculum and development of employability skills, Pearson correlation was used. The Pearson correlation tested the linear relationship in order to make a decision on the hypothesis. A positive linear relationship was found from the trainees' tool, and a Pearson correlation coefficient of 0.564 was obtained. A p-value of 0.00 indicates that the correlation observed was statistically significant at the 0.05 level, providing strong support for rejecting the null hypothesis. This suggests that a high-quality training program improves TVET graduates' development of employability skills.

A positive link was seen between the development of employability abilities and the training program, as indicated by the trainers' responses, with a Pearson correlation of 0.430. Additionally, the association was found to be statistically significant, with a p-value of 0.016. These findings indicate that trainers should be involved in the curriculum development process and that programs should be aligned with practical industry needs to enhance the training curriculum and bolster the development of employability skills among TVET graduates. The results further indicate a need for streamlining the program to align with the current government goals of bottom-up economic models, as well as aligning the program with National Industrial Training Authority (NITA).

Further, from the graduates' tool, a Pearson correlation coefficient of 0.648 was found between training curriculum and development of employability skills. The results indicate the need to have a curriculum that meets the industry needs considering that a quality curriculum enhances development of employability skills. This supports the findings of Republic of Kenya (2022) and Muchira et al. (2023) that skill mismatch results from a curriculum that is not relevant to the labor market. The findings showed that the development of employability skills and training curricula have a strong favorable association. The association was statistically significant, as indicated by the P-value of 0.00, which supports the null hypothesis' rejection.

In conclusion, the theory that claimed that training curricula had no bearing on how employability skills are developed by TVET graduates was disproved. Thus, the study came to the conclusion that training curricula had a major role in helping TVET graduates build employability skills. In order to further triangulate the data, a further qualitative analysis was conducted on open-ended questions from the questionnaires as well as interviews with principals, HODs, and key informants (employers).

#### **4.8.5 Qualitative Findings on Curriculum on Development and Development of Employability Skills of TVET Graduates**

The study sought to investigate the influence of training curriculum on the development of employability skills. The study aimed to understand how training programs shape the skills that employers seek in their workforce. The qualitative data was collected from the open-ended questionnaires from the trainers, trainees and graduates and interviews from the HoDs and principals from the sampled TVET institutions in two departments namely;

department of Building and Construction and department of Business Management. The key informant interviews represented the views of the employers.

From the qualitative data collected on the influence of training curriculum on the development of employability skills among TVET graduates, several major themes emerge: Respondents emphasized the need for innovative approaches in the training curriculum to foster a positive attitude towards learning and skill development. Practical assessments and increased practical sessions emerged most frequently. Suggestions were made to align the curriculum with industrial standards, advance technology, and adapt Competency-Based Education and Training (CBET) models. This would enhance practical assessments and sessions, allowing graduates to gain hands-on experience relevant to their fields.

Further skill development and exposure to careers was another emergent theme. Enhancing competency through exposure to various career paths and specialized courses was highlighted. Additionally, improving knowledge and skill development were identified as crucial aspects of the curriculum. Similarly, alignment with market needs and competency-based education was another major theme identified. The significance of matching the curriculum to industry demands and conducting frequent reviews to guarantee relevance and applicability was emphasized by the respondents. This supports the findings of Brewer and Comyn (2015) and Muchira et al. (2023) that industry participation in curriculum reviews and upgrades should occur regularly. According to a study conducted in South Africa by Ramnund-Mansingh and Reddy (2021), competency-based approaches and the availability of sufficient learning resources were deemed necessary for fulfilling industry criteria.



Further career guidance and industrial collaboration was observed. Suggestions included offering career guidance and counseling, developing entrepreneurial skills, and improving communication and technical skills. Industrial collaboration for practical exposure and the use of modern technology were also emphasized. The implications of these major themes suggest that Curriculum should align with industry standards and market needs to ensure graduates are equipped with the skills demanded by employers. Also, hands-on experience and practical assessments are crucial for developing employability skills and preparing graduates for real-world challenges. This agrees with Igwe et al. (2020) on the need to shift from exam to skill-oriented training.

Further incorporating innovative teaching methods and technology into the curriculum enhances its effectiveness and relevance. While Collaboration with industries and the provision of adequate teaching-learning materials are essential for bridging the gap between academia and the workforce. Further regular review and adaptation of the curriculum based on feedback and industry trends are necessary to ensure its effectiveness and alignment with evolving job market demands. This agrees with Varghese and Khare (2021) that curricula must be rigorous and updated frequently for graduates to be globally competitive.

The trainers and the graduates had this to say on what ways they thought training curriculum influences development of employability skills of TVET graduates. *“Training curriculum exposes TVET graduate to the possible employment areas in their field of expertise”* (Trainer 4). *“Incorporating industry relevant skills into the curriculum and industry partnerships will enable the trainee have the right skills required in the market”* (Graduate 3)

The study probed the principals and HoDs about the creation of the TVET training curricula. It was determined that the Kenya Institute of Curriculum Development (KICD) created the TVET training curriculum; but, with the introduction of CBET, the national polytechnics are now expected to create the curriculum, which will subsequently be dispersed to the other training establishments. The HoDs and the Principals further reported that the training curriculum enables the trainees to develop competencies, acquisition of relevant skills, such life skills necessary for the job market if properly unpacked and implemented. Out of the themes that were developed, one HoD from the department of building and construction said that;

*“The bottom line about the curriculum development is that with well-developed curriculum, the trainers and the trainees are aware of what they are supposed to achieve at the end of the training. The curriculum needs to be correctly unpacked to understand the training objectives and the outcomes and to be constructively aligned to the teaching learning resources, teaching methods and assessment methods. We constantly review our curriculum to fit the industry needs. With rapid technological change, we need to remain adoptable to the emerging trends” (H- TVI 4).*

The key informants were asked whether the graduates were adequately prepared for the job market and whether they were able to operate the equipment when they are employed. The Key informants who represented the employers said that the graduates were not adequately prepared for the job market and many organizations have introduced retraining programs to help the new employees to acquire specific skills relevant to their roles within the organization since most of them are employed with just basic and general skills. The retraining programs also helps the new employees to be updated on the latest industry

trends and technologies since most of them are not exposed to modern equipment and technologies from where they were trained. One of the Key informants said,

*‘Initially, we just had induction sessions for our new employees that took just a week. Today, the induction is still there, which we do first, then followed by intense re- training program. Most of them are employed as ‘interns’ so that they can get skills required and learn more about the organization. During the internship period, they are paid some stipends’’ (KI 4).*

When asked if they were involved in curriculum development as it is required, majority (4/5) said that they were never involved in curriculum development as important stakeholders from the industry. The two Key informants who said that they were involved reported that *“there was nothing much, the meeting was too short. KI 3 and 4).*

The HoDs, the Principals and Key informants consented that a dynamic and industry-aligned curriculum is vital for the development of employability skills. Practical applications that are currently enhanced by dual vocational training, soft skills integration and continuous learning emerged as key factors. While challenges exist, the emphasis on adaptability and responsiveness to industry needs is evident, reflecting a commitment to preparing students for successful careers. This is also noted by Muriuki and Dominic (2022) that a well-developed curriculum should help the trainee learn how to handle challenges, prepare them for long life learning as well as how to navigate from one job to another.

In summary, to determine the influence of training curriculum on the development of employability skills among TVET graduates; qualitative data was collected from the open-

ended questionnaires from the trainers, trainees and graduates and interviews from the HoDs and principals from the sampled TVET institutions. The discussion emphasized the need for practical assessments and increased practical sessions. It is clear also that the curriculum should be aligned with industrial standards while involving the industry in curriculum development. This agrees with Varghese & Khare (2021) and Kenayathulla (2021) on the need for TVET stakeholders, such as trainers, governments, and business leaders working together in modifying curricula for graduates to acquire usable skills needed in the rapidly evolving job market.

#### **4.8.6 Integration of Quantitative and Qualitative Findings on Influence of Training Curriculum and Development of Employability Skills TVET Graduates**

To ascertain how much the outcomes of the two data sets differed or were similar, objective three combined quantitative and qualitative data. According to quantitative research, training curricula has an impact on TVET graduates' improvement of employability abilities, with a mean score of 3.54. The statistical significance of the association is indicated by the p-value of 0.00, which bolsters the rejection of the null hypothesis. The results of the qualitative analysis showed that TVET graduates had generally good evaluations of the training curriculum's impact on the development of employability skills.

The results, both quantitative and qualitative, concurred on the improvements that should be done, such as making sure that practical sessions are adequate and including stakeholders more in curriculum creation. It is clear also that the curriculum should be aligned with industrial standards while involving the industry in curriculum development. There were no divergent views.

## **4.9 Influence of Industrial Engagement on Development of Employability Skills of TVET Graduates**

The fourth objective of this study aimed to determine whether industrial engagement influence development of employability skills of TVET graduates in Meru County. TVET institutions are key in human capital development which increases employability. The objective focused on industry connections that help the trainees acquire practical experiences, provision of internship, institutions sending experts trainers to assess and offer expert guidance during attachments, trainee and the trainers working closely with the supervisor during attachments, exposure to dual vocational training; and collaborations and partnerships with the industry for dual apprenticeship system. Both quantitative and qualitative data were gathered in order to accomplish this goal. Through the use of open-ended and closed-ended and SPSS Version 29 was used to analyze closed-ended questions. Using interview guides, qualitative data was gathered from the HoDs, Principals, and Key Informants. Both the open-ended from the questionnaire and interview guide responses were coded, subjected to thematic analysis, and presented in the form of narratives, quotes, and extracts.

### **4.9.1 Trainees' responses in regard to influence of industrial engagement on development of employability skills of TVET graduates in Meru County**

The goal of the study was to ascertain whether TVET graduates in Meru County's development of employability skills was influenced by their involvement in the industry. This focused on industry connections that help the trainees acquire practical experiences, provision of internship, institutions sending experts trainers to assess and offer expert guidance during attachments, trainee and the trainers working closely with the supervisor

during attachments, exposure to dual vocational training; and collaborations and partnerships with the industry for dual apprenticeship system. This section represents descriptive and inferential statistics. A five Likert scale questionnaire including strongly disagree, disagree, moderately agree, agree and strongly agree was used. Table 4.26 presents the results.

**Table 4. 26*****Trainee's Responses on Industrial Engagement***

Industrial Engagement N=123	SD	D	MA	A	SA	Mean	STD
My institution has connections to industry that help the trainees to acquire practical experiences	39(31.7)	26(21.1)	16(13)	21(17.1)	21(17.1)	2.67	1.497
My institution has connections to industry that are able to provide students with internship	41(33.3)	30(24.4)	13(10.6)	16(13)	23(18.7)	2.59	1.519
During industrial attachments, my institution sends experts trainers to assess and offer expert guidance.	12(9.8)	7(5.7)	22(17.9)	38(30.9)	44(35.8)	3.77	1.266
During attachments, the trainee and the trainers work closely with the supervisor.	12(9.8)	14(11.4)	28(22.8)	25(20.3)	44(35.8)	3.61	1.334
I am exposed to dual vocational training that will help me secure a job	36(29.3)	30(24.4)	9(7.3)	26(21.1)	22(17.9)	2.74	1.514
My institution has collaborations and partnerships with the industry for dual apprenticeship system.	39(31.7)	25(20.3)	12(9.8)	22(17.9)	25(20.3)	2.75	1.555

Table 4.26 presents responses regarding whether industrial engagement influences the development of employability skills among TVET graduates. Regarding the statement "My institution has connections to industry that help trainees to acquire practical experiences," 39(31.7%) strongly disagreed, 26(21.1%) disagreed, 21(17.1%) agreed, 21(17.1%) strongly agreed, and 16(13%) moderately agreed. A majority 65(52.8%) of respondents disagreed, indicating that most respondents believe their institutions lack connections with industry to help trainees acquire practical experiences. The mean score of 2.64 is below the midpoint of the Likert scale, indicating an overall negative perception. On average, respondents tend to disagree with the statement. While the high standard deviation of 1.497 suggests considerable variability in respondents' perceptions, reflecting diverse views and experiences regarding the TVET institution's industry connections. The majority disagreement underscores a potential disconnect between the institution and industry partners in facilitating practical experiences for trainees. This may limit students' exposure to real-world scenarios and hinder their preparedness for the workforce. The findings suggest a pressing need for the institution to establish and strengthen connections with industry partners.

Trainees can benefit greatly from collaborations with pertinent organizations in terms of gaining practical experience, gaining access to internships, and developing skills that are in line with industry demands. Improving connections with industry can enhance the relevance and currency of the institution's programs. Industry input and partnerships can inform curriculum development, ensuring that educational offerings meet current industry standards and demands. Studies by Adeosun et al. (2022) and Muchira et al. (2023) claim that practical training provides students with first-hand information and skill development



that is impossible to obtain in a classroom setting. The study's findings support TVETA's (2020) assertion that there is a mismatch between TVET programs and the demands of the labor market. Mursy et al. (2019) report that roughly 46% of young Africans in employment feel that their positions and skills don't match, and that hiring insufficiently skilled personnel negatively impacts their business operations for 21% of top firms. The study's findings indicate that skill mismatch results from a lack of knowledge and abilities needed to meet industry needs.

In regard to my institution has connections to industry that are able to provide trainees with internships, 41(33.3%) strongly disagreed, 30(24.4%) disagreed, 23(18.7%) strongly agreed, 16(13%) agreed and 13(10.6%) moderately agreed. Majority 71(57.7%) disagreed that their institutions had connections to industry that provided trainees with internships. The results imply that a significant majority (57.7%) of trainees believe their institutions lack connections to industry that can provide them with internships, highlighting a perceived gap in opportunities for practical industry experience during their education. This is consistent with the findings of the Adeosun et al. (2022) study, which found that 76.6% of respondents felt that the institutions did not assist with internship placement. According to a survey by Otieno and Onyango (2020), 59% of trainees and graduates had difficulty finding positions for attachments and internships. According to Dondofema et al. (2020), trainees, employers, and TVET institutions all gain from internships, despite the fact that these results show no relationship between the institutions and the industry to offer internships to students. The study by Mabunda and Frick (2020) found out that internships and apprenticeships raised the likelihood of employment for the trainees. Studies by Huang et al. (2022), Kavishe (2022) and Woodard (2018) established that inadequate internship

programs and government rules, such as tax breaks for small and medium enterprises, make it difficult to offer trainees the opportunity and skills they need.

In regard to statement, during industrial attachments, my institution sends experts trainers to assess and offer expert guidance; 44(35.8%) strongly agreed, 38(30.9%) agreed, 22(17.9%) moderately agreed, 12(9.8%) strongly disagreed, 7(5.7%) disagreed. The combined number of agreements was 82(66.7%). It meant majority of the respondents were of the view that the institution sent expert trainers to assess and offer expert guidance implying perceived effectiveness in supporting trainees during practical experiences. According to Mwaura et al. (2022), exposure to industrial attachment allows trainees to apply theory to practice and also influence development of employability skills and improve employment chances. According to a study by Otieno and Onyango (2020), 64% of the respondents agreed they got work experience during industrial attachment.

Similarly, in regard to during attachments, the trainee and the trainers work closely with the supervisor; 44(35.8%) strongly agreed, 28(22.8%) moderately agreed, 25(20.3%) agreed, 14(11.4%) disagreed and 12(9.8%) strongly disagreed. Majority of the trainees acknowledged 69(56.1%) working closely with supervisors for expert guidance and support, 26(21.1%) disagreed while 25(20.3%) were not sure. There seems to be a variation on the responses which was supported by a standard deviation of 1.334. This implies that even if the institutions sent experts trainers to assess and offer expert guidance, there were challenges on working closely with the trainees. This may be attributed to experts trainers assessing trainees who were not from their departments. The study by Muthoni et al. (2018) noted 92.3% supervisors were inflexible in accommodating alternative conception of the problem and 86.4% lacked ability to seek knowledge.

In regard to statement, 'I am exposed to dual vocational training that will help me secure a job', 36(29.3%) strongly disagreed, 30(24.4%) disagreed, 26(21.1%) agreed, 22(17.9%) strongly agreed and 9(7.3%) moderately agreed. Majority 66(53.7%) of the respondents indicated they were not exposed to dual vocational training. The results were supported by a low mean of 2.74 and a standard deviation of 1.514 implying lack of exposure to dual vocational training suggesting mismatch on skills required by the industry. Failure to have dual vocational training leads to high unemployment rates after course completion due to skill mismatch. This is different from Germany where all TVET trainees are exposed to dual vocational training leading to over 77% rate of transfer to employment (Federal Ministry of Education and Research 2021). In a dual vocational system, institutions and the industry share responsibility for providing technical and vocational education by preparing the trainees for effective participation in the labor market, thereby improving graduate employability. This was established by studies by Kithinji (2022), Nurjanah and Ana (2021), Shafi et al. (2021), Remington (2018), and Oviawe (2018). There is limited literature on dual vocational training in Kenya and Meru County.

Regarding my institution has collaborations and partnerships with the industry for dual apprenticeship system; 39(31.7%) strongly disagreed, 25(20.3%) disagreed, 25(20.3%) strongly agreed, 22(17.9%) agreed and 12(9.8%) moderately agreed. The results show a mean of 2.75 and standard deviation of 1.555. The findings implies that TVET institutions had no collaborations and partnerships with the industry for dual apprenticeship system. Failure to have collaborations and partnerships increases the disconnection between TVET institutions and the industry. This contributes to lack of competences and skills that enhance employability. A study by Nathaniel (2020) in China established TVET

institutions worked with industries and the industry school collaboration mechanisms were well embedded in TVET.

Aboagye and Puoza (2021) study supports industry involvement and collaborations between TVET institutions and industry through incentives. This agrees with Nathaniel (2020) that in the development of the world's economy, the employer should be involved in TVET in significant ways. Though Germany advocates for Dual vocation system, a study by Gessler and Michael (2017) noted companies rarely collaborated with the vocational institutions with 72.4% not coordinating with the institutions and 93% not cooperating with the institutions.

#### **4.9.2 Trainers responses in regard to influence of industrial engagement on development of employability skills of TVET graduates in Meru County**

The goal of the study was to ascertain whether TVET graduates in Meru County's development of employability skills was influenced by their involvement in the industry. The areas of focus were; industry connections that help the trainees acquire practical experiences, provision of internship, institutions sending experts trainers to assess and offer expert guidance during attachments, trainee and the trainers working closely with the supervisor during attachments, exposure to dual vocational training; and collaborations and partnerships with the industry for dual apprenticeship system Descriptive and inferential statistics are shown in this section. Strongly disagree, disagree, moderately agree, agree, and strongly agree were the five Likert scale options on the questionnaire. The outcomes are shown in Table 4.27.

**Table 4. 27*****Trainer's responses on industrial engagement***

Industrial Engagement (N=11)	SD	D	MA	A	SA	Mean	STD
My institution has connections to industry that are able to provide trainees with attachments	0	2(18.2)	3(27.3)	4(36.4)	2(18.2)	3.55	1.036
My institution has connections to industry that are able to provide trainees with internships	0	3(27.3)	2(18.2)	4(36.4)	2(18.2)	3.73	1.489
During industrial attachments, I am sent by my institution as an expert's trainer to assess trainees.	0	1(9.1)	2(18.2)	3(27.3)	5(45.5)	4.09	1.044
During attachments, the trainee and trainer work closely with the supervisor to offer experts guidance.	1(9.1)	2(18.2)	1(9.1)	2(18.2)	5(45.5)	3.45	1.128
My department has collaborations and partnerships with the industry for dual apprenticeship.	0	3(27.3)	2(18.2)	4(36.4)	2(18.2)	2.82	1.328

Table 4.27 shows responses to determine whether industrial engagement influence development of employability skills of TVET graduates. In regard to my institution has connections to industry that are able to provide trainees with attachments; 4(36.4%) agreed, 3(27.3%) moderately agreed, 2(18.2) strongly agreed and 2(18.2%) disagreed. The

majority 6(54.6%) agreed the institutions had connections with the industry that were able to provide trainees with attachments. The results imply that a slight majority (54.4%) of respondents believe their institution has connections to industry capable of providing trainees with attachments, suggesting some level of perceived opportunity for practical experience through industry connections. This could be explained by the fact that it is a requirement for trainees to go for attachment in course of their training before certification. The study by Mabunda and Frick (2020) found out that internships and apprenticeships raised the likelihood of employment for the trainees. The results contradict the results of Table 4.25 where 52.8% of trainees disagreed that institutions had connections with the industry that helped trainees acquire practical experiences. According to studies by Mwaura et al. (2022) and Muthoni et al. (2018), industrial attachment exposure influenced development of employability skills.

Similarly, regarding my institution has connections to industry that are able to provide trainees with internships; 4(36.4%) agreed, 2(18.2%) strongly agreed, 2(18.2%) moderately agreed and 3(27.3%) disagreed, thus the majority 6(54.5%) were in the bracket of agreeing. A significant number of respondents 3(27.3%) disagreed with a standard deviation of 1.489 indicating variation in responses. Internship gives graduates opportunities to apply and develop the skills and competences learned in the classroom. The results imply that a majority 6(54.5%) of respondents believe their institution have connections to industry capable of providing trainees with internships, highlighting the perceived importance of internships for applying and developing classroom-learned skills and competencies. Again, this contradicts the results in Table 4.25 where 57.7% of the trainees disagreed that the institution had connections to industry that are able to provide

trainees with internships. According to Bassah (2022), a TVET curriculum that prioritizes internships and hands-on training after meeting specific learning objectives improves trainees' acquisition of practical skills.

In regard to during industrial attachments, I am sent by my institution as an expert's trainer to assess trainees; 5(45.5%) strongly agreed, 3(27.3%) agreed, 2(18.2%) moderately agreed and 1(9.1%) disagreed. Majority of trainers 8(72.8%) agreed they were sent by their institutions as expert trainers to assess the trainees. Sending expert trainers to assess trainees reflect the institution's commitment to maintaining high standards of education and training. The results imply that a significant majority of trainers perceive being sent by their institutions as expert trainers during industrial attachments, indicating institutional dedication to upholding high standards in education and training evaluation. By evaluating the performance and progress of trainees, Bünning et al. (2022) noted an institution could identify areas of strength and improvement within its programs and instructional methodologies. Further, in regard to during attachments, the trainee and trainer work closely with the supervisor to offer experts guidance; 5(45.5%) strongly agreed, 2(18.2%) agreed, 2(18.2%) disagreed, 1(9.1%) strongly disagreed and 1(9.1%) moderately agreed. The results show 63.6% of the trainers agreed they closely worked with the supervisors to offer expert guidance. Majority 8(72.7%) of the trainers agreed that their institutions sent expert's trainers to assess trainees while 7(63.3%) agreed that the trainer and trainee worked closely with the supervisor to offer experts guidance. This implies that by assessing trainees, TVET institutions may make sure that the skills and competences they teach are in line with the demands of businesses and employers both now and in the future, promoting lifelong learning and ongoing skill development. According to Huang et al.

(2022), assessments conducted by expert trainers leads to identification of skill gaps which the institutions can tailor their moderations to fill (Liang, 2022).

In regard to my department has collaborations and partnerships with the industry for dual apprenticeship; 4(36.4%) agreed, 2(18.2%) strongly agreed, 2(18.2%) moderately agreed and 3(27.3%) disagreed. Majority 6(54.6%) of the trainers agreed their departments had collaborations and partnerships with the industry for dual apprenticeship. The results imply that majority of trainers perceive their departments as having collaborations and partnerships with the industry for dual apprenticeship, suggesting efforts to integrate practical industry experience into vocational education, However, the results show variation in responses with low mean of 2.82 which is supported by high standard deviation of 1.328. this implies TVET institutions in Meru County have no elaborate collaborations and partnerships with the industry for dual apprenticeship suggesting the graduates may not have the skills needed by the labor market. In reality, dual apprenticeship is a new concept in Meru County which requires collaborations and partnerships between TVET institutions and the industry. Kenya has been embracing dual apprenticeships but its adoption has been very slow. According to Ochieng and Ngware (2021), lack of dual apprenticeships has made it difficult for employers to get qualified skilled workers who are able to meet the employers' expectations of delivering quality work. TVET institutions according Muchira et al. (2023), can achieve dual apprenticeships by aligning the curriculum, teaching-learning resources and programs with the market demands which empower trainees in acquisition of skills needed by the industry. According to British Council (2022), in dual apprenticeships, industries contribute tools and equipment, expertise, training venues and the training outcomes are not measured against passing



exams but against employee-based outcomes in the UK TVET dual system. In Asia, through collaborations with textile industry associations, trainees are supplied with the skill sets needed by the sector (Halim & Binti, 2019; Rajadurai et al., 2018). There is no study that has been carried out in Meru County in reference to the dual apprenticeship thus this study will fill that gap.

#### **4.9.3 Graduates responses in regard to influence of industrial engagement on development of employability skills of TVET graduates in Meru County.**

The study sought to determine whether industrial engagement influence development of employability skills of TVET graduates in Meru County. The study focused on industry connections that help the trainees acquire practical experiences, provision of internship, institutions sending experts trainers to assess and offer expert guidance during attachments, trainee and the trainers working closely with the supervisor during attachments, exposure to dual vocational training; and collaborations and partnerships with the industry for dual apprenticeship system. The section represents descriptive and inferential statistics. A five Likert scale questionnaire including strongly disagree, disagree, moderately agree, agree and strongly agree was used. Table 4.28 presents the results.

**Table 4. 28*****Graduates Responses on Industrial Engagement***

Industrial Engagement	SD	D	MA	A	SA	Mean	STD
N=68							
My institution had connections to industry that help the trainees to acquire practical experiences	23(33.8)	15(22.1)	8(11.8)	6(8.8)	16(23.5)	2.66	1.589
My institution had connections to industry that are able to provide students with internship	24(35.3)	15(22.1)	4(5.9)	11(16.2)	14(20.6)	2.65	1.591
During industrial attachments, my institution sent experts trainers to assess and offer expert guidance and support to the trainee.	0	0	8(11.8)	15(22.1)	45(66.2)	4.54	.700
During attachments, the trainee and the trainers worked closely with the supervisor for expert guidance and support.	0	4(5.9)	11(16.2)	8(11.8)	45(66.2)	4.38	.962
My institution had collaborations and partnerships with the industry	4(5.9)	11(16.2)	9(13.2)	18(26.5)	26(38.2)	3.75	1.286
My institution had dual apprenticeship systems that helped trainees to secure jobs after completion.	23(33.8)	9(13.2)	10(14.7)	21(30.9)	5(7.4)	2.65	1.412

Table 4.28 shows the graduates' responses on whether industrial engagement influence development of employability skills. Regarding my institution had connections to industry that help the trainees to acquire practical experiences; 23(33.8%) strongly disagreed, 15(22.1%) disagreed, 8(16.2%) moderately agreed, 6(8.8%) agreed and 16(23.5%) strongly agreed. The results indicate a relatively high level of disagreement 38(55.9%) that their institutions had connections to the industry. The mean of 2.66 imply that respondents tended to disagree with the statement and the standard deviation of 1.589 indicate variation in responses. The results show graduates did not gain adequate hands-on skills that would help them to increase their employability. This result is in line with the findings of Nusrat and Sultana (2019). Comparably, Muchlemann and Wolter (2020) noted that trainees are expected to be exposed to actual workplace experiences in the industries where they participate in attachments and internships. According to Ismail (2018), in order to compete for jobs and keep a job in the labor market on a global scale, one must possess technical knowledge and employable skills. The results of this study implies that graduates' lack of practical experience throughout training resulted in a mismatch in their skill sets.

In regard to my institution had connections to industry that are able to provide students with internships 14(20.6%) strongly agreed, 11(16.2%) agreed, 4(5.9%) moderately agreed, 15(22.1%) disagreed and 24(35.3%) strongly disagreed. The results show that the majority 39(57.4%) of the graduates disagreed that the institutions had connections that provided them with internships. The results imply that a majority of graduates perceive a lack of connections between their institution and industry that would provide them with internship opportunities, highlighting a gap in access to practical experience through formal internship programs. The results agree with Otieno and Onyango (2020) study

where 59% of the respondents in the study indicated they searched for their industrial attachment. This confirms institutions have no elaborate connections to industry that are able to provide students with internships. According to Adeosun et al. (2022), through a study conducted in West Africa, internships increase graduates' employability. Failure by TVET institutions to have connections with industry that provide students with internships contributes to graduates' acquiring skills which do not match with the industry requirements. Most researchers including Ayonmike (2014), Chigbu and Nekhwevha (2022), Mabunda and Frick (2020) and Ochieng and Ngware (2021) contend that the mismatch between graduates' skills and the industry requirement is the major cause of unemployment.

In regard to during industrial attachments, my institution sent expert trainers to assess and offer expert guidance and support to the trainee, 45(66.2%) strongly agreed, 15(22.1%) agreed and 8(11.8%) moderately agreed. None of the respondents disagreed, meaning that there was good support for industrial attachment from TVET institutions. Dondofem et al. (2020) however found out 10% of trainees were attached in centers that never matched their expectation or what they were trained on. Similarly, regarding during attachments, the trainee and the trainers worked closely with the supervisor for expert guidance and support; 45(66.2%) strongly agreed, 8(11.8%) agreed, 11(16.2%) moderately agreed and 4(5.9%) disagreed. The results show that most graduates acknowledged working closely with supervisors for expert guidance and support. This implies that working closely with supervisors for expert guidance and support promotes meaningful learning during industrial attachment. Expert trainers are able to identify gaps in relation to technical competences, employability skills and industry knowledge. According to Liang (2022),

pinpointing areas where trainees require additional support or training, institutions can tailor their moderations to address the gaps effectively.

In regard to my institution had collaborations and partnerships with the industry; 26(38.2%) strongly agreed, 18(26.5%) agreed, 9(13.2%) moderately agreed, 11(16.2%) disagreed and 4(5.9%) strongly disagreed. Most graduates 44(64.7%) agreed that the institutions had collaborations and partnerships with the industry, implying perceived efforts to integrate industry engagement into their educational experience. Muchlemann and Wolter (2020) state that trainees expect to gain practical workplace experience in the industries where they participate in attachments and internships. Nevertheless, the study by Muchira et al. (2023) discovered that TVET institutions and industry did not have any relationships. Lack of collaboration between TVET colleges and business discourages students from acquiring industry-relevant skills and competencies, which increases unemployment. More research on TVET institutional collaborations and partnerships with the industry should be done to ascertain the results.

In regard to my institution had dual apprenticeship systems that helped trainees to secure jobs after completion; 5(7.4%) strongly agreed, 21(30.9%) agreed, 10(14.7%) moderately agreed, 9(13.2%) disagreed and 23(33.8%) strongly disagreed. The low mean of 2.65 and standard deviation of 1.441 confirmed that the institutions had no active dual apprenticeship systems that helped graduates secure jobs after completion. The findings imply that there is a strong indication from respondents that their institutions do not effectively utilize dual apprenticeship systems to help trainees secure jobs after completion, as evidenced by the low mean and relatively high standard deviation, suggesting

inconsistency or dissatisfaction with the existence and effectiveness of such programs. According to Shafi et al. (2021), dual apprenticeship system is the proven way of ensuring graduates possessed the skills demanded by the industry. Through dual apprenticeship, Nusrat and Sultana (2019) established that hand on skills are gained in the industry that make the graduates more employable. Dual apprenticeship system exposes graduates to modern tools and equipment thus increasing their chances of employment. According to Kenayathulla (2021), the Germany Dual System integrates school-based learning with work-based learning is lauded worldwide for producing well trained workers who are recognized internationally and Ahmed and Idris (2019) noted that Europe produced highly skilled graduates with competent skills for the world of work. The lack of skills demanded by the industry could probably be sorted if TVET institutions in Kenya and Meru County in general integrated school-based learning with work-based learning.

In conclusion, objective four descriptive statistics show the responses of the trainee, trainers and graduates in regard to influence of industrial engagement on development of employability skills. Both the responses of the trainees and graduates were in agreement while those of the trainers differed. It is the mandate of TVET institutions to develop highly skilled, knowledgeable and competent work force with the aim of making them employable thus reducing the rate of unemployment. However, the industry continually expresses dissatisfaction of low-level employability skills of TVET graduates due to mismatch in skills, poor quality and lack of relevant skills to industry needs (AfDB, 2022). In a market economy that is becoming more industrialized, industrial engagement between TVET institutions and the labor market cannot be compromised. AfDB further noted that the industry continually expresses dissatisfaction of low-level employability skills of TVET

graduates due to mismatch in skills, poor quality and lack of relevant skills to industry needs. By offering hands-on training in real work environments, trainees can better transition into the workforce with relevant experience and skills.

#### **4.9.4 Correlation results between Industrial Engagement and Development of Employability Skills of TVET Graduates**

The study's fourth null hypothesis is that industry engagement has no effect on TVET graduates in Meru County's development of employable skills. Tests of the null hypothesis were conducted using quantitative findings derived from data obtained from trainees, trainers, and graduates. The direction and intensity of the link between TVET graduates' improvement of employability skills and their industry participation were examined using a correlation test. To determine whether to conduct a hypothesis test and to assess the linear relationship, Pearson's correlation test was used. The outcomes are shown in Table 4.29.

**Table 4. 29**

***Correlations of on Industrial Engagement on Hypothesis Four***

Responses	Correlations Coefficient (r)	p-value	N
Trainees' response	0.650	0.00	123
Trainer response	0.748	0.00	11
Graduates' response	0.348	0.03	68

The relationship between industrial engagement and the development of employability skills was tested using Pearson's correlation in order to gauge the opinions of trainees, trainers, and graduates about hypothesis four. Regarding trainees' responses a Pearson correlation coefficient of 0.650 was obtained indicating a favorable linear association. The

null hypothesis was supported by the p-value of 0.00, which indicated that this association was statistically significant at the 0.05 level. Latif (2022) asserts that industrial engagement gives TVET graduates the chance to put their academic knowledge to use in a real-world setting, improving their comprehension and skill application in the relevant sector. Furthermore, a positive linear association was indicated by a Pearson correlation coefficient of 0.748 on the responses from the trainers. The null hypothesis was supported in its rejection by the p-value of 0.00, which indicated that the association was statistically significant at the 0.05 level. This suggests that graduates' employability skills develop better when they are exposed to the industry.

The results agree with Muriuki and Dominic (2022) and Muchlemann and Wolter (2020) that interaction with the industry through internships and attachments exposes graduates to current industry standards, practices and technological advancement. This ensures that their skills are aligned to the dynamic job demands. Furthermore, a positive linear relationship was indicated by graduates' responses on industrial engagement and the development of employability skills, with a Pearson correlation coefficient of 0.348 and a p-value of 0.03 indicating statistical significance at the 0.05 level, supporting the rejection of the null hypothesis. The results of this study were in line with those of Nathaniel (2020), who discovered that graduates have the chance to specialize and broaden their skill set in response to the particular requirements of various industries through industrial participation. This flexibility makes them more versatile and marketable. Graduates engaged with industries get insight into work place dynamics and organizational culture which enables them to smoothly integrate with the professional environment.



In summary, it was found that industrial engagement significantly influences the development of employability skills among TVET graduates, thereby rejecting the fourth hypothesis which stated that industrial engagement has no effect on employability skills development in TVET graduates in Meru County. To further strengthen the findings, qualitative analysis was conducted on open-ended questionnaire responses and interviews with principals, Heads of Departments (HODs), and employers, aiding in triangulating the results.

#### **4.9.5 Qualitative Findings on Industrial Engagement and Development of Employability Skills of TVET Graduates**

From the responses provided by trainers, trainees, and graduates regarding the influence of industrial engagement on the development of employability skills among TVET graduates, several major themes emerge: To start with partnerships and collaboration was a major theme identified. Both trainers and graduates emphasized the importance of partnerships between TVET institutions and industries. These partnerships facilitate exposure to real-world scenarios, align curriculum with industrial standards, and provide opportunities for internships, industry-based projects, and vocational training.

Secondly exposure and networking were another major theme identified. Trainees and graduates highlighted the significance of exposure to the job market and networking opportunities. Exposure allows graduates to familiarize themselves with job needs, increase motivation, and develop career pathways. Networking opportunities build confidence and provide connections essential for career development.

Skill enhancement and confidence building was another theme that was evident. Trainees and graduates also emphasized the need for skill improvement and confidence building. They suggested aligning the curriculum with industrial standards, providing guidance and support, and ensuring regular supervision to enhance skills and confidence among TVET graduates. The interviews from the HoDs, Principals and the Key informants sort to find out the how industrial engagement influences employability skills of TVET graduates.

The HoDs and the Principals reported that the institutions have connections with the industry mostly through internships and attachments for their trainees. Only institution TVI 2 and TVI 4 had collaborations and MoUs with the industries. TVI 4 had MOU with automobile industry but for business management and building construction, MoUs were not in place. Due to financial constraints, TVET institutions do not send experts trainers to assess their trainees, they rely on the reports given by the supervisors in the workplaces and few who are sent from the institutions are not necessarily expert trainers. To improve their engagement with the industries, the HoDs and the principals suggested that finances should be made available to enable them send experts' trainers to the field for assessments. They also suggested that duo vocational training be entrenched in the training curriculum. This would enable the learners to get skills both in the institution and in the industry. They also suggested that industries can also donate training equipment to the training institutions to assist the trainees get real experience of working with the modern equipment and tools.

The Key informants shared similar views with the HoDs and the Principal that trainee interaction with the industry would help the trainee to acquire more skills and get more practical experience. This can be done through field trips and excursions, attachments, internships and also duo vocational trainings. From the open -ended questionnaires, the

HoDs, Principals and the Key informants, it was evident that there was need for industrial engagement to be enhanced for the trainees to developed high level competencies and skills. This study agrees with Aboagye and Puoza (2021) that many studies have supported industrial involvement, whether through internships, hiring skilled workers as trainers, receiving donations from the industry, or the government's role in fostering collaborations between TVET institutions and industry through various incentives.

#### **4.9.6 Integration of quantitative and qualitative findings on influence of industrial engagement and development of employability skills TVET graduates**

In objective four quantitative and qualitative results showed that industrial engagement influences development of employability skills among TVET graduates. However, descriptive statistics from the responses of the trainees and graduates were in agreement while those of the trainers differed. According to the inferential statistics, there was a positive linear association between the trainers' responses and a Pearson correlation coefficient of 0.748. The null hypothesis was supported in its rejection by the p-value of 0.00, which indicated that the association was statistically significant at the 0.05 level. This implies development of employability skills improves when graduates are exposed to the industry.

From the open -ended questionnaires, the HoDs, Principals and the Key informants, it was evident that there was need for industrial engagement to be enhanced for the trainees to developed high level competencies and skills. The results of the two data sets were therefore in agreement. The results from interviews indicated due to financial constraints TVET institutions did not send expert trainers to assess their trainees as they were given

reports by supervisors in the work place. The results equally indicate the few sent from the institutions were not necessarily expert trainers.

#### **4.10 Personal Attributes Moderating Development of Employability Skills of TVET Graduates**

The goal of the study was to ascertain whether personal attributes affected the relationship between employability skill development and institutional parameters. The study focused on confidence, positive attitude, resilience and ability to network. Personal attributes are qualities that make one unique and determine one's effectiveness. According to this study, graduates who possess traits like resilience, teamwork, and a positive outlook would find it easier to land positions that are in line with their qualifications and in demand by employers (Rowe & Zegwaard, 2017). Graduate employability is increased by the TVET institutions' and the industry's development of personal traits in addition to topic knowledge and skills (Nurjanah & Ana, 2021; Remington, 2018; Oviawe, 2018). Both quantitative and qualitative data were gathered in order to accomplish this goal. Through the use of open-ended and closed-ended questionnaires, quantitative data was gathered from TVET graduates, trainers, and trainees. Version 29 of SPSS was used to analyze closed-ended questions. Using interview guides, qualitative data was gathered from the HoDs, Principals, and Key Informants. Both the open-ended questions from the questionnaires and interview guide responses were coded, subjected to thematic analysis, and presented in the form of narratives, quotes, and extracts.

#### **4.10.1 Trainees responses on whether personal attributes moderate the relationship between institutional factors and development of employability skills**

Personal attributes are fundamental skills that prepare trainees for lifelong and work in the global world. The goal of the study was to ascertain if institutional conditions and the growth of employability skills are mediated by personal characteristics. This section focuses on confidence, optimism, resilience, and ability to network while presenting descriptive and inferential statistics. Strongly disagree, disagree, moderately agree, agree, and strongly agree were the five Likert scale options on the questionnaire. The outcomes are shown in Table 4.30.

**Table 4. 30*****Trainees Responses on Personal Attributes***

Statements on personal attributes of TVET graduates	SD	D	MA	A	SA	Mean	STD
N=123							
Are you confident in your ability to you secure a job after completing TVET training?	2(1.6)	2(1.6)	14(11.4)	36(29.3)	69(56.1)	4.37	0.871
I have a positive attitude towards the course I am taking.	0	0	4(3.3)	34(27.6)	85(69.1)	4.66	0.541
I am positive that I will get the job that i am trained upon completion	0	5(4.1)	21(17.1)	37(30.1)	60(48.8)	4.24	0.879
To a large extent, I believe that resilience is a main personal attribute that is needed to secure a job	6(4.9)	2(1.6)	22(17.9)	37(30.1)	56(45.5)	4.1	1.067
I have resilience as my personal attributes that will enable me secure a job	0	6(4.9)	16(13)	47(38.2)	54(43.9)	4.21	0.852
My institution has an Alumni network to assist TVET trainees to secure employment.	39(31.7)	20(16.3)	23(18.7)	14(11.4)	27(22)	2.76	1.544

The trainees' answers about whether personal characteristics influence the link between institutional elements and the acquisition of employability skills are displayed in Table

4.30. In regard to are you confident in your ability to you secure a job after completing TVET training; 69(56.1%) strongly agreed, 36(29.3%) agreed, 14(11.4%) moderately agreed, 2(1.6%) disagreed and 2(1.6%) strongly disagreed. Majority 105(85.3) of the trainees agreed they had confidence in their ability to secure jobs after training. The assurance may stem from the fact that Technical and Vocational Education and Training institutions provide technical courses that guarantee learners obtain pertinent skills that can aid in finding job or launching into business. The findings imply that a large majority 105(85.4%) of trainees are confident in their ability to secure a job after completing their TVET training, suggesting a strong belief in the employability and relevance of the skills acquired through technical courses offered by TVET institutions. This confidence likely stems from the practical and vocational nature of the training that equips learners with skills directly applicable to the job market or entrepreneurship. According to Kenayathulla (2021), exposure to dual vocation system enables trainees to practice industrial work which increases their confidence and improves their experiences. According to Musyimi (2021), employing contemporary teaching and learning tools helped TVET graduates feel more confident as they developed employable skills.

Regarding my attitude about the course I'm taking, 85 respondents (69.1%) strongly agreed, 34 respondents (27.6%) agreed, and 4 respondents (3.3%) partly agreed. This is consistent with Table 4.22, which shows that 112 trainees, or 91.1%, felt that their courses were relevant to the job market. TVETA (2020) states that TVET has historically been associated with individuals who have struggled academically. Both the parents' and the trainees' perceptions of this negative one endure. The study's findings imply a shift in public opinion on TVET education.

Regarding to a large extent, I believe that resilience is a main personal attribute that is needed to secure a job; 56(45.5%) strongly agreed, 37(30.1%) agreed, 21(17.1%) moderately agreed, 6(4.9%) strongly disagreed and 2(1.6%) disagreed. Majority 93(75.6%) agreed resilience was a main personal attribute needed to secure a job. Probing on the same, the responses regarding I have resilience as my personal attributes that will enable me secure a job; 54(43.9%) strongly agreed, 47(38.2%) agreed, 16(13%) moderately agreed and 6(4.9%) disagreed. Majority 101(82.1%) agreed they had resilience as a personal attribute to enable them secure jobs. According to Mainga et al. (2022), resilience becomes crucial if one is to thrive in the difficult work environments that come with rapid technology advancements, greater competitiveness, long workdays, workplace changes, and multitasking.

My institution has an Alumni network to assist TVET trainees to secure employment; 39(31.7%) strongly disagreed, 27(22%) strongly agreed, 23(18.7%) moderately agreed, 20(16.3%) disagree and 14(11.4%) agreed. Majority 59(48%) of the respondents disagreed the institutions had Alumni network that assist TVET trainees to secure employment with 18.7% not sure. The results have a low mean of 2.76 and a high standard deviation of 1.544 indicating a high-level variation in responses. The findings imply that some trainees acknowledge the presence or effectiveness of such networks, albeit not universally recognized or utilized. Alumni networks play a significant role in assisting TVET trainees to secure employment and further develop their employability skills. They equally offer networking opportunities as graduates are able to connect with other alumni who are already well-established in their areas through the Alumni network. Establishing professional connections, learning about the business, and finding employment prospects



all depend on networking. The Alumni network may arrange training sessions, workshops, and seminars with the goal of improving particular employability skills including collaboration, leadership, problem-solving, and flexibility. Graduates may benefit from these activities by growing personally and professionally, which will increase their marketability (Oswald-Egg & Renold, 2021).

#### **4.10.2 Trainers responses on whether personal attributes moderate the relationship between institutional factors and development of employability skills**

The trainers' answers about whether a person's personal qualities influence the relationship between institutional elements and the development of employability skills—which centered on resilience, confidence, positive attitude, and ability to network—are displayed in this section. According to Mainga et al. (2022), resilience is an essential quality for graduates who help them cope with setbacks, have motivation to overcome obstacles and still remain calm when under pressure. This section represents descriptive statistics. A five Likert scale questionnaire including strongly disagree, disagree, moderately agree, agree and strongly agree was used. Table 4.31 presents the results.

**Table 4. 181*****Trainers Responses on Personal Attributes***

Statements on personal attributes of TVET graduates	SD	D	MA	A	SA	Mean	STD
N=11							
my graduates have the confidence to secure a job	0	0	0	6(54.5)	5(45.5)	4.27	0.905
my graduate have positive attitude towards the course our graduates are am taking	0	0	2(18.2)	4(36.4)	5(45.5)	4.36	0.809
To a large extent, I believe that resilience is a main personal attribute that is needed to secure a job.	0	1(9.1)	1(9.1)	2(18.2)	7(63.6)	4.09	0.701
My graduates have resilience and this makes them a secure a job after graduation	0	1(9.1)	1(9.1)	2(18.2)	7(63.6)	4.18	0.603
My institution has an Alumni networks formed to assist TVET graduates to secure employment.	0	1(9.1)	2(18.2)	1(9.1)	3(27.3)	4	0.775

The trainers' opinions regarding whether personal characteristics influence the link between institutional elements and the acquisition of employability skills are displayed in Table 4.31. Regarding my graduates have the confidence to secure a job; 5(45.5%) strongly agree and 6(54.5%) agree. All the trainers agreed their graduates had the confidence to secure a job. This is explained by the fact that graduates with training in technical and vocational education (TVET) have a better chance of finding work because employers value their combination of technical and soft skills. This endorsement implies the effectiveness of TVET programs in preparing graduates for employment in various sectors

of the economy. A study by Gerhardt (2019) in Landon indicated trainers needed to develop leadership skills among the trainees to promote confidence in employment. According to World Bank (2023) and ACET (2023), TVET education provides graduates with practical skills, knowledge and competences related to their career path as it emphasizes on hand-on training and practical exposure. TVET trainers can increase graduates' confidence, improves communication and collaboration skills by thus enhancing productivity (Chan & Pheng, 2018).

In regard, my graduates have positive attitude towards the course the graduates are taking; 5(45.5%) strongly agreed, 4(36.4%) agreed and 2(18%) moderately agreed. Majority 9(81.9%) of the trainers agreed that graduates had positive attitude towards the course they were taking. According to Murphy-Braynen et al. (2022), positive attitude is an attribute most employers seek far ahead of certification or institution attended. A study by Mohamed (2022) in Ethiopia equally noted the quality of TVET was a major predictor of attitude of trainees towards TVET education which also influence how fast they get absorbed in the labor market. Rono et al. (2023) established integration of ICT and having a supportive and encouraging environment influenced the attitude of the students (Rono et al., 2023).

In regard to, I believe that resilience is a main personal attribute that is needed to secure a job; 7(63.6%) strongly agree, 2(18.2%) agree, 1(9.1%) moderately agree and 1(9.1%) disagree. Further, in regard to my graduates have resilience and this makes them a secure a job after graduation 7(63.6%) strongly agree, 2(18.2%) agree, 1(9.1%) moderately agree and 1(9.1%) disagree. In both findings, majority 9(81.8%) of the trainers agreed resilience was a main attribute needed for one to secure a job. The findings imply that a significant majority 9(81.9%) of trainers believe that resilience is a crucial personal attribute needed

to secure a job, and they also perceive that their graduates possess this attribute, which contributes to their ability to secure employment after graduation. This underscores the importance of resilience as a key factor in the employability of TVET graduates, as recognized by trainers in the field. The finding is in consistence with Burke (2019) that graduate resilience was a key attribute for a successful career. Gheihman et al. (2021) developed two skill-based resilience exercises which established resilience could be built through implementation of effective programs which could reduce burnout and increase well-being of medical students. According to Sullivan et al. (2023), trainers should embrace resilience training programs as they significantly affect college student-athletes' use of adaptive coping strategies in managing academic and sport-related stressors.

In regards to my institution has an Alumni networks formed to assist TVET graduates to secure employment; 3(27.3%) strongly agree, 1(9.1%) agree, 2(18.2%) moderately agree and 1(9.1%) disagree. The respondents were only 7. This shows only seven trainers responded to the specific question. Probably implying ignorance and lack of graduate's involvements in alumni networks. Alumni networks often offer mentoring programs where recent graduates can receive guidance and advice from more experienced alumni. Graduates can set goals, negotiate their career pathways, and make well-informed decisions regarding their professional development with the support of mentoring relationships. The Alumni network may facilitate job placement services by connecting graduates with job openings, internships, or career opportunities within their professional networks (Hofmann et al., 2021). This support can help graduates transition from education to employment more smoothly and efficiently. Graduates may gain more self-efficacy and confidence in their skills by getting involved with the Alumni network and participating in its events.

This can empower them to take initiative, pursue career advancement opportunities, and overcome challenges they may encounter in their professional lives (Neroorkar & Gopinath, 2020).

#### **4.10.3 Graduates response on whether personal attributes moderate the relationship between institutional factors and development of employability skills**

Personal attributes sometimes determine the entry behavior of graduates in the labour market as it's not uncommon for graduates who pursued the same course and even got similar grades to take different time to enter the job market (Kirui, 2019). About 500,000 graduates from Kenya enter the labour market annually yet only 25 per cent are absorbed. According to Nyamai (2022), this is attributed to among others by lack of personal attributes. This section represents descriptive and inferential statistics and focused on confidence, positive attitude, resilience and ability to network. A five Likert scale questionnaire including strongly disagree, disagree, moderately agree, agree and strongly agree was used. Table 4.32 presents the results.

**Table 4. 32*****Graduates Response on Personal Attributes***

Statements on personal attributes of TVET graduates N=68	SD	D	MA	A	SA	Mean	STD
Are you confident in your ability to secure a job	0	0	20(29.4)	4(5.9)	44(64.7)	4.35	.910
I have a positive attitude towards the course I took.	0	0	9(13.2)	17(25.0)	42(61.8)	4.49	.723
To a large extent, I believe that resilience is a main personal attribute that is needed to secure a job	0	0	14(20.6)	20(29.4)	34(50.0)	4.29	.793
I am a team player	0	0	10(14.7)	30(44.1)	28(41.2)	4.26	.704
My institution had an Alumni networks to assist TVET graduates secure employment among other duties.	0	0	12(17.6)	23(33.8)	33(48.5)	4.31	.758

Table 4.32 shows graduates response on whether personal attributes moderate the relationship between institutional factors and development of employability skills. Two observations were noted; that is, the mean values were high while the standard deviation for each statement was around the mean, indication low variation in responses across all graduate respondents. Regarding are you confident in your ability to secure a job, 44(64.7%) strongly agreed, 4(5.9%) agreed, and 20(29.4%) moderately agreed. This shows that most graduates 48(70.6%) agreed that they were confident in their ability to secure a

job. This implies the graduates have the inner knowledge that they are capable. However, according to Tholen and Brown (2018) the reality is graduates face a lot of challenges when they enter the labor market and it takes resilience for a graduate to knock several doors seeking for job opportunities without success. When their aspirations for their careers are not fulfilled, they get disillusioned with the realities of the workplace.

Similarly, regarding I have a positive attitude towards the course I took; 42(61.8%) strongly agreed, 17(25%) agreed, and 9(13.2) % moderately agreed. This implies that most graduates 59(86.8%) had a positive perception towards the course they took. In the past, there has been a negative perception of TVET trainings with the graduates feeling disadvantaged when seeking job opportunities with their university graduates' counterparts (TVETA, 2020). According to Yen et al. (2023), graduate's initiative and self-drive result in the development of ideas, which in reality result in the flow of work.

Regarding to a large extent, I believe that resilience is a main personal attribute that is needed to secure a job; 34(50%) strongly agreed, 20(29.4%) agreed, and 14(20.6%) moderately agreed. The finding implies a strong consensus on the importance of resilience in achieving employment success. A believe in resilience was evident graduates. Resilience is the capacity to overcome difficult situations and experiences; a key attribute for a successful career (Burke, 2019; Mainga et al., 2022). Graduates face a lot of challenges when they enter the labor market and it takes resilience for a graduate to knock several doors seeking for job opportunities without success (Tholen & Brown, 2018). All the respondents indicated they were resilient.

Further, in regards to I am a team player; 28(41.2%) strongly agreed, 30(44.1%) agreed, and 10(14.7%) moderately agreed. A study by Succi and Canovi (2020) found skills like team work was highly prioritized by employers hence developing such skills enhanced graduate employability. The outcomes corroborated Tentama's (2019) study, which revealed that teamwork abilities were developed at graduation, with a rating of nearly 4 on a 5-point Likert scale. "Employers today are looking for workers who get along with other people, who can work as part of a team, who are dependable and reliable, who are eager to learn, and who have good written and oral communication," as stated by Kenayathulla et al. (2019).

Regarding my institution had an Alumni network to assist TVET graduates secure employment among other duties; 33(48.5%) strongly agreed, 23(33.8%) agreed, and 12(17.6%) moderately agreed. The results show graduates perceived the institutions have alumni networks. Alumni networks connect the graduate with professional contacts that are very beneficial in employability Zhu (2018) enhance institutional reputation, Ofori and Kwarteng (2021) offer job opportunities Fischer et al. (2021) mobilize resources Daniel and Hammond (2021) and offer support and mentorship opportunities (Neroorkar & Gopinath, 2020). Alumni networks persist for years and it takes personal initiative and willingness as a graduate to make use and to be part of alumni.

TVET graduates' mean score for personal qualities was 3.82 overall, which is a relatively high score. This suggests that character traits like resilience, a positive outlook, and readiness for the workplace are essential to being employable. Oviawe (2020) and Edmund (2000) define personal qualities as essential talents, such as character traits, aptitude, values, and attitude, which equip learners for a global workforce and a lifetime of learning.



In addition to teaching technical skills, trainers should cultivate these human qualities in their students to increase their employability and success in the workforce.

#### **4.10.4 Qualitative Findings on Personal Attributes Moderating Development of Employability Skills of TVET Graduates**

The qualitative information acquired from trainees, trainers, and graduates provides insightful information about the qualities needed to land a job and how these qualities affect TVET graduates' development of employability skills. In-depth answers to questions about graduate characteristics, personal characteristics, and how to develop these characteristics to increase employability abilities were given by the respondents. These served as the section's main subjects.

It is clear from the trainees' comments that qualities like confidence, problem-solving abilities, teamwork, honesty, communication skills, and a positive outlook are considered essential for landing a job. These characteristics are thought to have a major impact on the development of employable skills, encouraging traits like self-assurance, teamwork, self-discipline, resilience, decision-making, and elevated self-esteem.

Trainers also highlighted various graduate attributes such as creativity, innovation, teamwork, commitment, communication skills, attitude, and problem-solving skills, which are perceived as instrumental in securing jobs. They emphasized the importance of exposure to the industry, encouragement, motivation, workshop and training participation, and skill development for enhancing these attributes and improving employability skills among TVET graduates.

Graduates, on the other hand, emphasized attributes like self-motivation, resilience, networking, self-confidence, and problem-solving skills as influential in developing their employability skills. They suggested the need for workshops, seminars, exposure to industry, career development opportunities, teamwork, and alumni networks to enhance graduate attributes and improve employability skills among TVET graduates.

The implications of these responses suggest a holistic approach to enhancing employability skills among TVET graduates. This includes focusing on personal and graduate attributes such as teamwork, communication, problem-solving, and confidence building. Additionally, creating opportunities for exposure to industry, workshops, seminars, and networking can contribute significantly to skill development and job readiness. Overall, the qualitative data underscores the importance of addressing personal and graduate attributes to enhance the employability of TVET graduates, thus ensuring their successful transition into the workforce.

Interviews were also conducted with Heads of Departments (HoDs), Principals, and employers about personal attributes and the development of employability skills. The responses from qualitative findings are based on their perspectives, knowledge and experiences. According to the HoDs and the Principals on how their institution develop graduate attributes for their trainees and graduates, the themes that emanated indicated the institutions exposed their trainees to extracurricular activities such as music and drama festivals to build confidence, resilience and positive attitude. They have also incorporated courses focusing on soft skills such communication skills and computer applications into the curriculum.

On the issue of whether the sampled institutions have alumni networks and how they assist in enhancing development of employability skills, the HoDs and the Principals from TVI 1, TVI 2, TVI 3 and TVI 4 reported that they have alumni networks and they engage them mostly in motivational talks, career fares and in research conferences as keynote speakers. They also link them to the industry for internships and attachments. In TVI 6, they reported that they have small and informal alumni group. Only I TVI 5 where they reported that they have no alumni database.

One Principal said that;

*“Our Alumni network is very strong and very active. We engage them during career fares and research conferences. For instance, in the year 2022 when we had a research conference, our alumni were the keynote speakers. They really encourage our trainees. Even when it comes to getting placements for attachments and internships, they are of great help. (P- TVI 4).*

The interview further sought to find out what should be done to the trainees to enhance their personal attributes. The themes that emanated from the HoDs and the Principals regarding this question was that; emphasize need to be laid on adaptability and willingness of the trainees to learn new technologies. Personal attributes also need to encompass teamwork and collaboration within the departments. Some attributes like problem-solving ability, attention to detail, critical thinking and communication skills for interaction with colleagues and clients are also critical.

Further, in relation to personal attributes and development of employability skills, the Key informants were asked what personal attributes they normally look for when recruiting

fresh graduates from TVET institutions. The theme that came out from the Key informants were that the fresh graduates need to have mastered and be able to apply practical skills and competencies in the real work environment. Personal qualities like adaptability, resilience, and the capacity to function under duress are also essential for any employee. This supports the findings of Awodiji and Magodidi (2023) that the majority of TVET graduates find it difficult to find work because they lack soft skills or certain personal qualities. Employers prioritize soft skills when hiring new employees.

Asked how the employers deal with fresh graduates when they find that they do not possess the employable skills, the themes that emanated were that; in case of an interview, the candidate will not be successful and in case a candidate is too good in some aspects, they will employ him/her as an intern for one to learn on - job and develop practical skills and organization or industry specific requirements. When the issue of what can be done to enhance the personal qualities of TVET graduates was posed to the key informants, the following themes emerged: educational institutions should include problem-solving and communication skills training in their curricula. Empowerment through hands-on training, coaching, and mentoring can significantly enhance the personal qualities of TVET graduates.

It is noteworthy that the Secretary's Commission on Achieving Necessary Skills (SCANS) instrument was utilized in Malaysian research to evaluate the employability skills of vocational students (Dania et al., 2014). The study found out that employability abilities held by TVET graduates were influenced by self-perception, industry training, and career development participation. However, similar results in this study were achieved by use of in-depth interviews from the HoDs, Principals and the Key informants.

In summary, personal attributes such as mastery and application of practical skills, ability to work under pressure and soft skill such as resilience, effective communication and problem solving, play integral roles in shaping a potential employee into work environment. Technical institutions, the graduates and the employers have a big role to cultivate and develop the personal attributes to enhance employability.

#### **4.10.5 Integration of quantitative and qualitative results on Personal Attributes moderating development of employability skills**

Personal attributes served as the study's moderating variables. Both the qualitative and quantitative findings were combined. The qualitative results also agreed with the quantitative results that sampled institutions expose their trainees to extracurricular activities such as music and drama festivals to build confidence, resilience and positive attitude. They have also incorporated courses focusing on soft skills such communication skills and computer applications into the curriculum. While the responses from trainers, graduates and interviews showed the institutions had alumni networks, the trainees had a differing opinion. This implies TVET institutions have alumni networks not well established. With technological advancement, the institutions can update the records of their trainees and use tracer data to trace those have already graduated.

Personal attributes also need to encompass teamwork and collaboration within the departments. Some attributes like problem-solving ability, attention to detail, critical thinking and communication skills for interaction with colleagues and clients are also critical. Personal qualities like resilience, the capacity to perform under pressure, and adaptability are extremely important for any employee.

#### **4.11 Overall Model on Institutional Factors and Development of Employability Skills**

Multiple linear regressions were conducted in SPSS version 29 to assess how institutional factors contributed to the variations in the development of employability skills. To facilitate the multiple regression analysis, the data from trainee, trainer, and graduate questionnaires were merged in SPSS. The merging was successful based on the fact that all the questions were examining similar indicators in the same sequence. They were also rated using similar rating scale and had same number of sentiments but customized according to categories of respondents. Following a meticulous review, variables with identical constructs across datasets were identified and inconsistencies in naming or scales were rectified. The merging process utilized a unique participant identifier to ensure proper record matching across all three datasets. Only relevant variables required for the regression analysis were imported during the merging process.

Following the merging, a comprehensive data verification process was undertaken to confirm the presence of all necessary variables, eliminated duplicates, and explored the distribution of variables within the merged dataset. This meticulous merging process resulted in a comprehensive dataset that combined information from trainees, trainers, and graduates, laying the groundwork for the subsequent multiple regression analysis. In this study, multiple linear regressions was used to predict institutional factors which were the independent variables (X1, X2, X3, and X4) and the moderating variable the personal attributes (Z1) on the dependent variable development of employability skills (Y). The results are presented below. The multiple regression model used was:

$$Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + e, \text{ where:}$$

Y= Development of Employability Skills

B0 = Constant

B1, B2, B3, B4 = regression coefficient weights for X1, X2, X3, X4, as shown below:

X1 = Trainer characteristics

X2 = Teaching- learning resources

X3 = Training curriculum

X4= Industrial engagement

$\varepsilon$  = is the estimated error of the model.

Table 4.33 presents the results on the influence of institutional factors which were the independent variables (X1, X2, X3, and X4) on Y, the dependent variable.

**Table 4. 19**

***Model summary on institutional factors and development of employability skills***

Model	R	R Square	AdjustedR Square	Std. Error of the Estimate
1	.820	.672	.613	.53313

a. Predictors: (Constant) trainer characteristics, teaching-learning resources, training curriculum and industrial engagement

The result from Table 4.33 shows the R Square value (0. 672) which indicates that approximately 67.2% of the variance in the development of employability skills was explained by all predictors included in the model, suggesting a better fit of the regression model. The R value of 0.820 indicates the strength of relationship that exists between the predictors (trainer characteristics, teaching-learning resources, training curriculum and

industrial engagement) with the model's explanatory variable (the development of employability skills). In the next step, the study examined the ANOVA table to determine the validity of the model.

#### 4.11.1 ANOVA on institutional factors and development of employability skills

To test the overall significance and validity of the regression model, ANOVA was carried out and results are shown in Table 4.34.

**Table 4. 20**

*ANOVA on institutional factors and development of employability skills*

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	89.835	3	29.945	105.355	.000 <sup>b</sup>
	Residual	55.425	195	.284		
	Total	145.259	198			

A. Dependent variable: development of employability skills

B. Predictors: (constant), trainer characteristics, teaching-learning resources, , training curriculum, industrial engagement

The findings show F statistic  $F(3,195) = 105.355, P = .000$  which is significant because P-value is less than 0.05, indicating that the overall model including all predictors is statistically significant. The findings suggest that characteristics of trainers, quality of teaching-learning resources, training curriculum content and engagement with industry play a significant contributory role in achieving the desired employability skills. These results carry implications for moderation measures aimed at enhancing these predictors to optimize the desired outcomes of a TVET graduate, workforce development, and professional training. The findings directly imply a need to consider the caliber of trainers, ensure adequate and quality teaching-learning resources, a pressing need to modernize



facilities, and a further need for TVETs to cultivate industry partnerships and collaborations to enhance overall efficacy of their training.

#### 4.11.2 Regression coefficients on institutional factors and development of employable skills

To assess the projected change in the development of employable skills for each unit change in the respective independent variable, while keeping other variables constant, regression coefficients were calculated and are presented in Table 4.35.

**Table 4. 21**

*Regression Coefficients on institutional factors and development of employability skills*

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	.347	.265		1.311	.049		
Trainer characteristics (X1)	-.037	.057	-.030	-.638	.524	.875	1.143
Teaching learning resources (X2)	.862	.063	.697	13.690	.000	1.000	1.399
Training curriculum (X3)	.547	.069	.444	7.902	.000	.621	1.610
Industrial engagement (X4)	.433	.052	.452	8.322	.000	.662	1.511

a. Dependent Variable: Development of employability skills

In the above regression coefficients table, the unstandardized B-coefficient values for X1, X2, X3, and X4 are -.037, .862, .547, and .433, respectively. The P-values for X2, X3, and X4 were found to be significant in the combined model, whereas, the P-value for X1 was found to be insignificant ( $P > 0.05$ ). The unstandardized B-coefficient values were taken into account and interpreted in the study since the constant value was found to be

statistically significant and because all respondents used the same units of measurement scale for all variables.

The results show that, even if all four factors together are statistically significant in the combined regression model, teaching-learning resources, training curriculum, industrial engagement, and have the most effects on the development of employability skills. The first predictor (trainer characteristics) is suppressed by the combined model, rendering it non-significant ( $P > 0.05$ ). It was confirmed that the original regression model was correct.

$Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + e$ , where

$$Y = 0.347 - 0.037X_1 + 0.862X_2 + 0.547X_3 + 0.433X_4 + e$$

From the above regression model, the findings on teaching-learning resources ( $B = -0.037$ ,  $P = 0.000$ ); meaning, one-unit increase in teaching-learning resources is associated with a 0.037 unit decrease in the development of employability skills score, and this effect is statistically significant. This implies that access to better teaching-learning resources can contribute to improving graduates' employability skills. Training curriculum ( $B = 0.547$ ,  $\text{Sig.} = 0.000$ ) was also statistically significant in influencing development of employability skills; meaning, one-unit increase in training curriculum is associated with a 0.547 unit increase in development of employability skills score, and this effect is statistically significant.

The results show that there is a statistically significant ( $p < 0.000$ ) correlation between a one-unit rise in industrial engagement and a 0.433-unit increase in development of employability skills score ( $B = 0.433$ ,  $P = 0.000$ ). This suggests that greater collaboration

with industry professionals in TVET programs significantly enhances graduates' employability skills.

The collinearity statistics tolerance values ( $> 0.7$ ) and VIF values ( $< 1.4$  and  $< 10$ ) suggest a lack of multicollinearity among the independent variables. This ensures the estimated coefficients are reliable. These findings highlight the importance of institutional factors, particularly teaching-learning resources, training curriculum, and industrial engagement in fostering the development of employability skills among TVET graduates. TVET institutions can better prepare graduates with the skills needed to succeed in the labor market by concentrating on these areas.

The aforementioned findings provide empirical evidence that the trainer characteristics have a substantial impact on development of employability skills. This result is in line with a previous study by Smith (2018), which highlighted the importance of qualified and experienced educators in career education. In addition to having subject matter competence, effective trainers also utilize their pedagogical qualities to engage and inspire trainees (James & Khan, 2020). The results imply that in order to improve the caliber of education offered by TVET institutions, adequate funding is required for hiring and developing trainers.

The study notably highlights the significance of teaching-learning resources which were proved to be impactful on development of employability skills of TVET graduates. In order to facilitate employable skill development, teaching-learning resources must be both high-quality and readily available. This result emphasizes how important it is for TVET institutions to have well-equipped workshops, labs, and other spaces (OECD, 2019).

Trainees can acquire real-world experience and build technical skills related to their chosen disciplines by having access to contemporary facilities and resources (Billett, 2018). This implies that TVET institutions should place a high priority on infrastructure and educational learning materials in order to foster an atmosphere that supports efficient teaching and training.

The results have also underscored the essence of a training curriculum in the process of developing employability skills. Notably, the development of employability skills is greatly influenced by the content and organization of the training curriculum. This implies a need for a curriculum to be in line with industry standards and current labor market developments (UNESCO-UNEVOC, 2020). To maintain the relevance of curriculum content and adaptability to shifting industry demands, regular reviews and updates are indispensable (European Commission, 2021). World Bank (2017) noted that incorporating problem-solving, collaboration, and communication skills into the curriculum is critical improving graduate' employability in general.

Industrial engagement also featured prominently in this study, implying its importance in the process of developing employable skills. It helps to close the knowledge gap between classroom instructions and practical application of skills. Undoubtedly, employers can help trainees gain valuable exposure to workplace practices and expectation; hence, a close collaboration should be sought, which is critical in integrating learning activities with industry requirements (CEDEFOP, 2021). The study by Watts and Kershaw (2019) argued that partnerships with the industry helps graduates find employment, creating opportunity for a transfer of knowledge and skills. The finding indicates a great need for TVET institutions to proactively foster and pursue connections with nearby firms and related

sectors to guarantee that their curricula are pertinent and adaptable to the demands of the labor market.

The foregoing results have demonstrated the value of institutional factors in determining how employability skills are developed at TVET institutions. They have offered strong empirical data that highlights the roles played by industrial engagement, training curricula, teaching-learning resources, and trainer characteristics in determining the caliber and applicability of vocational education and training as well as graduates' readiness to enter the workforce. The findings of how TVET graduates' personal attributes affect how institutional elements relate to their development of employability skills are presented in the following section.

#### **4.12 Moderating Effect of Personal Attributes**

The study empirically evaluated the empirical evidence on the relationship between institutional factors and the development of employability skills among TVET graduates in Meru County, as presented in previous sections. The findings regarding graduates' personal attributes and their correlation with the development of employability skills in Meru County have also been discussed in the descriptive and qualitative results.

In this section, the study explores the moderating influence of graduates' personal attributes on the relationship between institutional factors and the development of employability skills among TVET graduates. This analysis aimed to test hypothesis number five, which stated, "personal attributes do not moderate the relationship between institutional factors and the development of employable skills of TVET graduates." The data used in testing moderation influence in this study were from TVET graduates. This was because, TVET

graduates were expected to have developed requisite employability skills and; hence, addition of the interplay of their personal attributes were expected to boost their employability chances.

Subsequently, a Moderated Multiple Linear Regression (MMR) was used to test the 5<sup>th</sup> null hypothesis. The diagnostic test results of the underlying assumptions supported the study's use of multiple linear regression (see diagnostic test results in section 4.4). The regression model summary, model validity, and regression weights are the three most important tables that are displayed in the output of a moderated multiple linear regression. As noted above, three models are displayed in each table provided below. The first model comprises all the predictor variables. All the predictor variables and personal attributes of TVET graduates are then included in the second model, while all of the predictor variables, personal attributes of TVET graduates, and interaction terms related to personal attributes of TVET graduates are included in the third model. Using the R square change statistics obtained from the model summary table, the researcher examined the third model which assisted in determining whether or not there was a moderating influence or not. The validity of the MMR model was determined by looking at the ANOVA results. The regression weight results, which display the coefficient values corresponding to each predictor variable in the MMR model, are shown in the third table. The MMR model employed in the study was;

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_jZ_j + \beta_{ij}X_iZ_j + \epsilon$$

The above model is in three parts;

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \epsilon \dots\dots\dots (i)$$

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_zZ_j + \epsilon \dots\dots\dots (ii)$$

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_jZ_j + \beta_{ij}X_iZ_j + \epsilon \dots\dots\dots (iii)$$

Where:

$Y$  is the development of employability skills of TVET graduates

$\beta_0$  is the constant value,

$\beta_1, \beta_2, \beta_3$  and  $\beta_4$  are the coefficients of trainers' characteristics, teaching-learning resources, training curriculum, and industrial engagement.

$X_1, X_2, X_3$  and  $X_4$  are trainers' characteristics, teaching-learning resources, training curriculum, and industrial engagement.

$Z_j$  is the personal attributes of TVET graduates

$B_j$  is the coefficient of the personal attributes of TVET graduates

$X_i Z_j$  is the interaction term between variable  $X_i$  ( $i = 1, 2, 3, \& 4$ ) and personal attributes of TVET graduates

$B_{ij}$  is the coefficient of the interaction term based on personal attributes of TVET graduates.

$\epsilon$  is the error term.

The development of employable skills of TVET graduates ( $Y$ ) was regressed in the first model using trainers' characteristics, teaching-learning resources, training curriculum, and industrial engagement variables. To check shift in R-square statistics, the personal attributes of TVET graduates construct ( $Z_j$ ) was incorporated into the second model. The study then introduces the interaction terms ( $X_i * Z_j$ ) in the third model. This aided in ascertaining the presence or absence of moderation influence. Tables 4.36, 4.37, and 4.38 contains the findings. Tables 4.36 specifically shows results on model validity.

**Table 4. 22*****ANOVA: Moderation effect of personal attributes of TVET graduates***

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	41.720	4	10.430	32.211	.000 <sup>b</sup>
	Residual	20.400	63	.324		
	Total	62.119	67			
2	Regression	44.884	5	8.977	32.292	.000 <sup>c</sup>
	Residual	17.235	62	.278		
	Total	62.119	67			
3	Regression	56.326	6	9.388	98.845	.000 <sup>d</sup>
	Residual	5.793	61	.095		
	Total	62.119	67			

a. Dependent Variable: Development of employability skills

b. Predictors: (Constant), Trainer characteristics, Teaching-learning resources, Training curriculum, Industrial engagement

c. Predictors: (Constant), Trainer characteristics, Teaching-learning resources, Training curriculum, Industrial engagement, Graduate personal attributes

d. Predictors: (Constant), Trainer characteristics, Teaching-learning resources, Training curriculum, Industrial engagement, Graduate personal attributes, Moderator interaction terms

Based on Table 4.36's results,  $F(4, 63) = 32.211$ ,  $P < .000$ . This indicates that the initial model, incorporating variables X1, X2, X3, and X4, holds true as indicated by the statistically significant P-value (below 0.05). In essence, there exists a genuine association between institutional factors and development of employability skills among TVET graduates. Subsequently, personal attributes of TVET graduates are introduced as a construct in the second model as a predictor, yielding the following F statistics:  $F(5, 62) = 32.292$ ,  $P < .000$ . With the P-value below 0.05, this indicates statistical significance, affirming the validity of the second model. This highlights the significant role of personal attributes in shaping the skills development of TVET graduates.



The ANOVA results in Table 4.14 collectively underscore the importance of trainers' characteristics, teaching-learning resources, training curriculum, and industrial engagement, alongside the personal attributes of TVET graduates, as crucial predictors in determining the enhancement of employability skills among TVET graduates. Model three further elucidates the extent of moderation, as evidenced by the R-square change statistics displayed in Table 4.37.

**Table 4. 23**

*Model summary: moderation effect of personal attributes of TVET graduates*

Mode	R	Adjusted Square	Std. Error of the Estimate	Change Statistics			Sig. F Change	
				R Square	F Change	df1		df2
1	.820 <sup>a</sup>	.672	.56904	.672	32.211	4	63	.000
2	.850 <sup>b</sup>	.723	.52725	.051	11.383	1	62	.001
3	.952 <sup>c</sup>	.907	.30818	.184	120.474	1	61	.000

a. Predictors: (Constant), Trainer characteristics, Teaching-learning resources, Training curriculum, Industrial engagement

b. Predictors: (Constant), Trainer characteristics, Teaching-learning resources, Training curriculum, Industrial engagement, graduate personal attributes

c. Predictors: (Constant), Trainer characteristics, Teaching-learning resources, Training curriculum, Industrial engagement, graduate personal attributes, moderator interaction terms

Based on the data presented in Table 4.37, it is evident that all four constructs related to institutional factors collectively explain 67.2% of the total variance in the development of employability skills among TVET graduates ( $R^2 = .672$ ). Furthermore, the analysis indicates a robust positive correlation ( $R = 0.820$ ) between these institutional factors (X1: trainers' characteristics; X2: teaching-learning resources; X3: training curriculum; X4: industrial engagement) and the development of employability skills. This underscores the

substantial influence of institutional factors in preparing graduates for the workforce, aligning with previous research (European Commission, 2021).

Upon introducing personal attributes of TVET graduates as a construct, the R-square value in the second model increased by 5.1%, maintaining statistical significance ( $R^2 = .723$ ,  $P = .001$ ). This suggests that even after accounting for personal attributes, the model remains influential in shaping employability skills. Notably, the inclusion of personal attributes enhances the model's predictive capacity, with resilient, teamwork, leadership and positive attitudes emerging as significant predictors of employability.

In pursuit of understanding moderation effects, a moderator's interaction factor based on TVET graduates' personal attributes ( $Z1 * Xi$ ) was introduced in the third model of the MMR analysis. The findings reveal a substantial increase of 18.4% in the R-square value, reaching 90.7% ( $R^2 = .907$ ,  $p = .000$ ), signifying statistical significance. This indicates that the inclusion of the moderation factor elevates the model's explanatory power significantly, confirming the moderating role of TVET graduates' personal attributes between institutional factors and the development of employability skills. Consequently, the regression coefficients provided in Table 4.38 were further scrutinized to delve into these relationships.

**Table 4. 24*****Moderation effect of the personal attributes of TVET graduates: regression weights***

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.688	.442		-1.558	.124
	Trainer characteristics	-.052	.120	-.046	-.434	.666
	Learning resources	-.049	.094	-.067	-.523	.603
	Training curriculum	.805	.107	.632	7.547	.000
	Industrial engagement	.576	.131	.507	4.413	.000
2	(Constant)	-1.907	.546		-3.492	.001
	Trainer characteristics	-.163	.116	-.143	-1.405	.165
	Learning resources	-.074	.088	-.100	-.843	.402
	Training curriculum	.653	.109	.513	6.021	.000
	Industrial engagement	.489	.124	.431	3.959	.000
	Graduate personal attributes	.666	.198	.332	3.374	.001
3	(Constant)	-26.008	2.219		-11.721	.000
	Trainer characteristics	1.413	.159	1.239	8.901	.000
	Learning resources	1.870	.184	2.526	10.141	.000
	Training curriculum	2.702	.197	2.122	13.707	.000
	Industrial engagement	2.196	.171	1.933	12.808	.000
	Graduate personal attributes	6.439	.538	3.211	11.958	.000
	Moderator interaction terms	-1.719	.157	-7.718	-10.976	.000

a. Dependent Variable: Development of employability skills

The results show that in first model, both training curriculum and industrial engagement are statistically significant in predicting the development of employability skills; whereas, trainer characteristics and teaching-learning resources are statistically insignificant. In the second model, training curriculum, industrial engagement and graduate personal attributes

are significant, but both trainer characteristics and teaching-learning resources remain insignificant, however, the model is still statistically significant ( $\beta_1 = -1.907$ ,  $P = .001$ )).

Based on the results shown in the aforementioned tables, the study refuted the fifth null hypothesis: 'personal attributes do not mediate the association between institutional factors and the development of employability skills among TVET graduates in Meru County.' This implies that the personal attributes of TVET graduates exert a significant moderating influence on the development of employability skills. Importantly, with the introduction of the moderator interaction term, the final model retained its statistical significance ( $\beta_1 = -26.008$ ,  $P = .009$ ).

The study observed that when all constructs related to institutional factors (including trainers' characteristics, teaching-learning resources, training curriculum, and industrial engagement) were integrated into a single model alongside the moderators' interaction terms, statistical significance was achieved. This highlights that the explanatory capacity of the model is further bolstered by the incorporation of interaction variables, indicating that the personal attributes of graduates moderate the impact of institutional factors on development of employability skills (European Commission, 2021). Thus, the personal attributes of TVET graduates exhibit a robust moderating influence on the nexus between institutional factors and the advancement of employability skills. This finding aligns with prior research by scholars such as Smith (2018), Wang et al. (2018), and CEDEFOP (2021) emphasizing the significance of personal attributes in employment. The results affirm that the relationship between institutional components and development of employability skills is indeed moderated by the personal attributes of graduates.

The results highlight the necessity for TVET institutions and policymakers to take into account graduates' personal attributes as well as institutional factors when designing and fostering successful skill development initiatives (Jones et al., 2017; UNESCO-UNEVOC, 2020). In order to optimize graduates' employment potential, TVET institutions should prioritize developing trainees personal traits in addition to improving teaching quality, resources, and curricular relevance (Gupta & Sharma, 2020; OECD, 2019). The results mean that TVET institutions should initiate measures to enhance personal attributes of trainees, owing to their importance in shaping graduates' transition to the workforce (CEDEFOP, 2021). Moreover, the interplay between institutional factors, personal attributes, and development of employability skills among TVET graduates is upheld and also supported by Smith and Brown (2019). The study notes that by acknowledging the moderating role of personal attributes, institutions can adopt comprehensive strategies to enhance graduates' employability and promote their successful integration into the labor market, an idea that is consistent with observation by Jones et al. (2017).

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter synthesizes the research findings, reflects on the conducted research, draws conclusions, and provides recommendations for further studies, addressing identified research gaps. The study aimed to explore the relationship between institutional factors and the development of employability skills among graduates from technical training institutions in Meru County, Kenya.

Specific objectives included examining the influence of trainers' characteristics, teaching-learning resources, training curriculum, and industrial engagement on the development of employability skills among TVET graduates. Additionally, the study investigated the moderating effect of personal attributes on the relationship between institutional factors and employability skills development among graduates in Meru County. Conclusions and recommendations are organized based on these objectives.

#### **5.2 Summary of the Findings**

The findings were organized into key sections highlighting the results. Initially, a summary was provided regarding the response rate, illustrating the proportion of participants who took part in the study. Subsequently, the background information of the respondents, including demographic details and relevant characteristics, was outlined. Finally, a synopsis was given regarding the variables examined in the study, elucidating significant findings and outcomes associated with each variable.

### **5.2.1 Response rate**

The study achieved overall response rate was 89.30% with 202 questionnaires considered for analysis. The interview guides response rate was 92% for HoDs and 83% for Principals while the level of saturation for Key Informants was 5. The results presented a Cronbach's alpha value of 0.937 indicating the data collected was adequate and reliable.

### **5.2.2 Profile of the respondents**

The study's demographic data came from key informants, Principals, HoDs, graduates, trainers, and trainees. The trainees, trainers, graduates and HoDs were sampled from two departments; Business Management and Building & Civil Engineering Departments. On profile of the trainees, the study revealed 64(52%) of trainees were enrolled in Business Management courses while 59(48%) were in building and Civil Engineering. The age varied with majority of the trainees being between 18-24 years. Concerning gender, most of them were males.

On the profile of the trainers, the study revealed that 5(45.5%) were in Business Management and 6(54.5%) in Building and Civil Engineering. In terms of age, the majority of the trainers were between 25-30 years and in terms of gender, the majority of the trainers were males. In regard to education level, majority of the trainers were degree holders 9(81.8). Regarding the number of years worked as a TVET trainer between 1-5 years were 8(72.7%) while 1(9.1%) had worked in the current station between 1-5 years.

On the profile of graduates, the study revealed that majority of them were between 18-24 years and on gender, most of them were males. On the profile of HoDs, principals and key informants; out of the 11 HoDs, 7 (seven) were male while 4 (four) were female and from the 5 principals 4 (four) were female and the saturation level for key informants was

reached at 5 participants. According to the responder profile, there was a gender gap, with more men among the graduates, trainees, trainers, and HoDs.

### **5.2.3 Development of TVET employability skills of TVET graduates**

The study focused on the development of employability skills among TVET graduates, specifically addressing communication, problem-solving, teamwork, and leadership. Quantitative data were collected through questionnaires, while qualitative data were gathered and analysed through thematic narratives. Descriptive and inferential statistics were employed for quantitative data analysis.

The findings, with an average score of 3.87 and a relatively low standard deviation of 0.858, indicate a consistent level of agreement among respondents, including trainees, trainers, and graduates. Furthermore, the standard deviation derived from themes emerging from interviews with Heads of Departments, Principals, and Key Informants underscores the importance of communication, problem-solving, teamwork, and leadership as critical employability skills among TVET graduates.

### **5.2.4 Trainer characteristics on development of employability skills of TVET graduates**

This was the first independent variable of the study. The research integrated both quantitative and qualitative data. The mean and standard deviation of trainer characteristics was 4.31 and 0.784 respectively. Thus, TVET institutions need to continue to prioritizing hiring and training trainers who demonstrate strong characteristics conducive to fostering employability skills among trainees. The findings show on average, respondents rated trainer characteristics relatively high, suggesting that they perceive trainers as possessing favorable characteristics for skill development. The trainees and trainers agreed trainers'



characteristics influenced development of employability skills of TVET graduates while there was variation in regard to the graduate responses. The findings indicated a statistically significant relationship between trainer characteristics and the development of employability skills. Specifically, the correlations were as follows: for trainer responses  $r = 0.199$ ,  $p = 0.02$ ; for trainers  $r = 0.599$ ,  $p = 0.07$ ; and for graduates  $r = 0.355$ ,  $p = 0.03$ . These results led to the rejection of the null hypothesis, suggesting that trainer characteristics do influence the development of employability skills among TVET graduates. A further qualitative analysis on both open-ended questions from the questionnaires administered to the trainees, trainers and graduates shed light on the significant influence of trainer characteristics on the development of employability skills among TVET graduates. Qualitative findings from the interview guides administered to HoDs, principals and key information validated the results. To improve employability skills, HoDs and principals suggested in-house training, capacity building, training on use of modern tools and equipment, and exposure to market trends through linkage to the industries would go a long way in enhancing trainer characteristics. The key informants in their opinion pointed out that trainers should have soft skills and upgrade to new and modern technologies by getting involved with the industry where the modern technologies are found.

### **5.2.5 Teaching-learning on development of employability skills of TVET graduates in Meru County**

The influence of teaching-learning resources on TVET graduates' improvement of employability skills was the second independent variable. Both quantitative and qualitative data were incorporated into the study. From the findings of the study, physical

infrastructure such as classrooms and Computer labs, tools and equipment for practical, ICT infrastructure both hardware and software and Computer virtual labs for trainers and students were available but inadequate. The findings pertaining to teaching-learning resources revealed an average score of 3.49, suggesting that respondents perceived teaching-learning resources as inadequate for skill development. The hypothesis test results indicated a statistically significant relationship between teaching-learning resources and the development of employability skills, leading to the rejection of the null hypothesis. The findings highlighted a prevalent lack of modern and up-to-date teaching-learning resources in the majority of TVET institutions in Meru County, which significantly hampers the development of employability skills among TVET graduates.

The study recommends that TVET institutions be equipped with adequate and relevant teaching-learning resources, as these are crucial for fostering the development of employability skills among graduates. Qualitative findings further supported this recommendation, emphasizing that the availability and adequacy of teaching-learning resources profoundly influence the development of employability skills among TVET graduates.

#### **5.2.6 Training Curriculum on development of employability skills of TVET graduates in Meru County**

The third independent variable of this study that aimed at analyzing training curriculum influence on development of employability skills of TVET graduates. The findings indicated an overall positive perception of the training curriculum's influence on the development of employability skills among TVET graduates. The training curriculum mean of 3.54 was relatively moderate with a standard deviation of 1.179, suggesting that

respondents almost similar perceptions about the effectiveness of the curriculum in fostering development employability skills. The study found that in order to further enhance graduates' preparedness for the labor market, stakeholders' involvement in curriculum creation needs to be strengthened and the quality of practical sessions must be guaranteed. Although the association in the trainers' tool was not statistically significant, the hypothesis that training curriculum does not influence the development of employability skills among TVET graduates was rejected. However, the qualitative findings from the open-ended questions from the questionnaires and interview guides validated the findings. A key focus was curriculum alignment with industry standards to ensure graduates were well prepared for the workforce. The necessity of more practical sessions and practical assessments was also underlined during the discussion.

#### **5.2.7 Industrial engagement on development of employability skills of TVET graduates in Meru County**

The fourth independent variable of the study focused on analyzing the influence of training curriculum on the development of employability skills among TVET graduates. Descriptive statistics from trainees and graduates revealed that institutions lacked connections with industry and dual apprenticeship opportunities were unavailable. This situation has led to industry dissatisfaction due to low-level employability skills among TVET graduates, skills mismatch, poor quality, and a lack of relevant skills aligned with industry needs.

Regarding industrial engagement, the mean score was 3.58 with a standard deviation of 1.100, indicating some level of involvement but also highlighting areas for improvement. The findings also indicated a statistically significant relationship between industrial

engagement and the development of employability skills, thereby rejecting the hypothesis that claimed industrial engagement does not influence the development of employability skills among TVET graduates in Meru County.

Qualitative findings from open-ended questions in the questionnaires and interview guides underscored the need for enhanced industrial engagement. Suggestions included facilitating internships, hiring skilled workers as trainers, receiving industry donations, and government initiatives to foster collaborations between TVET institutions and industry through various incentives.

### **5.2.8 Personal Attributes Moderating Development of Employability Skills of TVET Graduates in Meru County**

The final objective aimed to determine if personal attributes moderated the link between institutional factors and the development of employability skills among TVET graduates in Meru County. The results indicated that attributes such as confidence, resilience, positive attitude, and teamwork were crucial in fostering these skills. TVET graduates' personal attributes scored a mean of 3.82 with a standard deviation of 0.822, suggesting a high rating of confidence in their abilities. The study also found that TVET institutions in Meru lacked alumni networks to support graduates in securing employment.

Regarding the correlation analysis, there was a statistically significant linear relationship for trainees ( $r=0.402$ ,  $p=0.00$ ) and graduates ( $r=0.456$ ,  $p=0.01$ ), indicating the importance of personal attributes. However, for trainers, the correlation was not statistically significant ( $r=0.373$ ,  $p=0.26$ ). Consequently, the hypothesis stating that personal attributes do not moderate the relationship between institutional factors and the development of employability skills among TVET graduates was rejected.

Qualitative findings from open-ended questions from the questionnaires indicated personal attributes contributed significantly to the development of employability skills, fostering qualities like teamwork, confidence, self-discipline, resilience, decision-making, and increased self-esteem. The findings of interview guides from HoDs and Principals indicated exposure to extracurricular activities-built confidence, resilience and positive attitude. In addition, key informants indicated personal attributes such as resilience, ability to work under pressure and adaptability are very critical for any employee. They also suggested integration of personal attributes and soft skills training in the TVET curriculum to enhance development of employability skills.

#### **5.2.9 Summary on overall purpose of the study**

The study aimed to uncover the relationship between the development of employability skills and various institutional factors impacting graduates of technical training institutes in Meru County, Kenya. Additionally, it sought to understand how personal attributes might moderate this relationship. The institutional factors under examination were trainer characteristics, teaching-learning resources available, the training curriculum itself, and the institutes' engagement with industry. Employing multiple regression analysis, the researchers found that nearly 61.8% of the variability in employability skills development could be explained by these four factors. Among them, industrial engagement exerted the strongest positive influence, suggesting tight links between institutes and employers substantially boosted graduates' job-ready skills. Access to quality teaching-learning resources also had a moderate positive effect, as well as the training curriculum significantly influenced skills development process, while the influence of trainers' characteristics were suppressed in the composite model.

In testing the moderation effect, the study noted that when personal attributes were introduced as a moderating variable, the model's overall explanatory power increased to 90.7%. With personal attributes in the model, industrial engagement retained its position as the most influential factor. The researcher concluded that graduates' personal attributes play a significant role in moderating the interplay of institutional factors and the development of job-readiness skills in TVETs.

### **5.3 Conclusions**

Vocational Education and Training is seen as the solution to economic and financial freedom, unemployment of the youth, reduction of anti-social activities, acquisition of skills, lifelong learning as well as a contributor to sustainable development. This study has contributed to five important areas in technical education namely; trainer characteristics, teaching-learning resources, training curriculum, industrial engagement and personal attributes.

#### **5.3.1 Development of Employability Skills**

Regarding the dependent variable, the study noted development of employability skills is influenced by institutional factors (trainer characteristics, teaching-learning resources, training curriculum and industrial engagement) as well as personal attributes which was a moderating variable. The quantitative results noted the industry in addition to academic qualifications required TVET graduates to have employability skills such as communication skills, team work, social skills, problem solving skills, interpersonal skills, creativity, technological skills, critical thinking and leadership skills. To create a more responsive and effective system for developing employability skills, TVET institutions,

industry and the graduates need to work together to improve quality of training through industrial engagement, personal development and development of soft skills.

### **5.3.2 Trainer Characteristics on Development of Employability Skills of TVET Graduates**

The study found that trainers' characteristics significantly influence the development of employability skills among TVET graduates. It emphasizes the importance of TVET institutions setting and enforcing standards for trainer qualifications to ensure they possess the requisite pedagogical skills, experience, and expertise. Priority should be given to hiring and training trainers who exhibit qualities conducive to nurturing employability skills among trainees. The quantitative analysis underscores the necessity for TVET institutions to collaborate with industries to align trainer competencies with industry demands. This entails trainers taking personal initiatives to enhance their capacity and actively engaging with industries where modern technologies are prevalent.

### **5.3.3 Teaching-Learning Resources on Development of Employability Skills of TVET Graduates**

The study found physical infrastructure such as classrooms and Computer labs, tools and equipment for practical, ICT infrastructure both hardware and software and Computer virtual labs for trainers and students were available but inadequate. The inadequacy of teaching-learning resources in TVET institutions hampers practical training needed for the acquisition of skills and competences required by the industries. The study equally revealed most TVET institutions in Meru County lacked modern up-to-date, teaching-learning resources, physical infrastructure, tools and equipment which significantly hamper development of employability skills among TVET graduate. This leads to skill gap. The

findings highlight adequate teaching-learning resources are essential for instructional delivery and facilitate hands-on learning thus allowing graduate to acquire practical skills relevant to their career industries.

#### **5.3.4 Training Curriculum on Development of Employability Skills of TVET Graduates**

The findings revealed a generally positive perception of the training curriculum's impact on the development of employability skills among TVET graduates. However, it was noted that the TVET curriculum lacked relevance to the labor market, resulting in a skill mismatch that necessitated employers to retrain the graduates. Increased stakeholder involvement in curriculum development, along with adequate practical sessions and assessments, was identified as crucial for enhancing graduates' job market readiness. Ultimately, the study concluded that a high-quality training curriculum aligned with industry standards enhances the development of employability skills among TVET graduates. The findings emphasize the importance of revising the curriculum to ensure alignment with the changing demands of the job market and to better address the development of employability skills.

#### **5.3.5 Industrial Engagement on Development of Employability Skills of TVET Graduates**

The results revealed that industrial engagement significantly impacts the development of employability skills among TVET graduates in Meru County. The findings underscored the importance of TVET institutions enhancing partnerships and collaborations with industries to offer trainees increased opportunities for practical experience, internships, and exposure to real-world situations, thereby improving their employability skills.



Importantly, the statistical correlation underscores the significant positive relationship between industrial engagement and development of employability skills of TVET graduates. The results emphasized on the importance of partnerships and collaborations between TVET institutions and industries through internships, attachments and dual apprenticeship. The findings highlighted TVET institutions had financial constraints, thus did not send experts trainers to assess their trainees, as they relied on reports given by the supervisors in the workplaces and few sent from the institutions were not necessarily expert trainers. The finding of this study concluded there was skill mismatch due to lack of necessary skills and knowledge required to meet industrial needs as industrial engagement enhanced graduates 'development of high-level competencies and skills.

### **5.3.6 Personal Attributes Moderating Development of Employability Skills of TVET Graduates**

The study identified the significant moderating influence of personal attributes on institutional factors and the development of employability skills among TVET graduates in Meru County. It emphasized that personal attributes are essential skills preparing trainees for both lifelong learning and global work environments. Employers highly value attributes such as confidence, teamwork, resilience, and a positive attitude, prioritizing them in hiring processes. These attributes can be nurtured through extracurricular activities like sports, music festivals, workshops, seminars, internships, and attachments. The study also noted the absence of established alumni networks in most TVET institutions in Meru County, emphasizing the importance of such networks in providing networking opportunities for professional growth, industry insights, and job opportunities. It concluded that technical institutions, graduates, and employers all play significant roles in fostering

and cultivating these personal attributes to enhance employability. While personal attributes are viewed positively, TVET institutions should continue to focus on continuously improving and developing these attributes in graduates to effectively meet industry demands.

## **5.4 Recommendations on Research Findings**

The study came up with recommendations which were categorized by the study variables and objectives. Additionally, it discusses the implications of the results on theories, policies, and practices.

### **5.4.1 Development of Employability Skills of TVET Graduates**

The industry demands that TVET graduates possess employability skills in addition to academic credentials. These abilities include problem-solving, teamwork, communication, technology, critical thinking, and leadership. This has been necessitated by rapid technological changes, globalization and high levels of competition that require those seeking for jobs and those already working to possess high employability skills. The study noted industrial engagement had the highest impact on development of employability skills. The study recommends work-integrated learning and exposure to the industry as well as alignment of learning with industrial needs. The study noted that a need for TVETs to ensure adequate provision of resources and infrastructure for hands-on learning experiences, recognizing their crucial role in fostering the development of employability skills. Additionally, the formation of alumni networks is advocated, as they facilitate valuable connections for attachments, mentorship, and job opportunities. Moreover, the study highlights the significance of considering diverse factors influencing perceptions of institutional programs and skill development efforts. This understanding can inform

strategies aimed at enhancing specific skill areas and overall initiatives for developing employability skills effectively.

#### **5.4.2 Trainer Characteristics on Development of Employability Skills of TVET Graduates**

Trainers are the major stakeholders in delivering technical, vocational and education training tasked with delivering key skills to trainees and quality work-force as development of employability skills falls upon them. Much as the trainees and trainers agreed that the trainers' education level was adequate to handle both theory and practical, were knowledgeable and understood the subject matter in handling both theory and practical and had positive attitude towards instruction delivery in their area of training, the graduates' responses had variations. This indicates probably, in the course of searching for employment, the graduates were able to assess whether their trainers were experienced and understood the subject matter.

There was a prominent need for TVET institutions to set and enforce standards for trainer qualifications to ensure trainers possess necessary pedagogical skills, experience and expertise to effectively impart employability skills. There is also need for TVET institutions to collaborate and partner with industries to align trainer competencies with industry needs as well as trainers taking personal initiatives in building capacity through professional development to keep themselves updated with industry needs. Another thing that was noted was the need to establish policies that support ongoing professional development for trainers to keep them updated with the industry needs by embracing teaching methodologies that align to the industry demands.

### **5.4.3 Teaching-Learning Resources on Development of Employability Skills of TVET Graduates**

The study emphasized the significant role of teaching-learning resources, encompassing physical infrastructure, tools, equipment, and sufficient ICT infrastructure, in fostering the development of employability skills. To enhance the employability skills of graduates, TVET institutions in Meru County must ensure the availability and adequacy of these resources. The study noted need to equip TVET institutions with modern, relevant teaching-learning resources, incorporating technology to meet industry demands. This necessitates increased government funding and infrastructure development to ensure access to modern tools, equipment, and technology. Furthermore, the study suggests that TVET institutions prioritize real-world simulations and practical training.

### **5.4.4 Training Curriculum on Development of Employability Skills of TVET Graduates**

A quality curriculum should guarantee employability for trainees upon completion of their studies. The findings recommend increased involvement of stakeholders in curriculum development, adequacy of practical sessions and practical assessments that would enhance the graduates' readiness for the job market. Continuous curriculum assessment, adaption of Competency-Based Education and Training (CBET) models and updating of the curriculum based on feedback and industry trends to ensure ongoing alignment with evolving industry demands is also recommended by this study.

In Meru County, the study equally recommended TVET institutions to be adequately supplied with modern teaching-learning resources as well as exposure of trainers to

pedagogical capacities to improve their instructional methods. Another recommendation is increased practical sessions and practical assessments.

#### **5.4.5 Industrial Engagement on Development of Employability Skills of TVET Graduates**

TVET institutions are key in human capital development which increases employability. The industry had continually expressed dissatisfaction of low-level employability skills of TVET graduates due to mismatch in skills, poor quality and lack of relevant skills to industry needs. The study noted there were no connections, partnerships and collaborations between TVET institutions and the industry which deterred acquisition of skills and competences relevant to the industry leading to unemployment. To bridge the gap, the study recommends TVET institutions in Kenya and Meru County in general to embrace dual apprenticeship system which integrates school-based learning with work-based learning. This will help TVET graduates apply theoretical knowledge in real world environment enhancing their understanding and proficiency in application of skills in their relevant field. The study equally noted for TVET institutions to have elaborate collaboration and partnerships with the industry which would ease the burden of looking for attachments and internships by trainees and graduates.

Sending experts trainers for assessment during attachment leads to identification of gaps in relation to technical competences, employability skills and industry knowledge. The study noted TVET institutions did send experts trainers but relied on reports given by the supervisors in the workplaces and few who are sent from the institutions are not necessarily expert trainers due to financial constraints. Need for adequate budgetary allocations for facilitating experts' trainers during field assessments was also underscored.

#### **5.4.6 Personal Attributes Moderating Development of Employability Skills of TVET Graduates**

Personal attributes, defining individual uniqueness and effectiveness, play a pivotal role in facilitating graduates' access to relevant and desired employment opportunities within the industry, as highlighted in this study. The development of personal attributes, alongside subject knowledge and skills, by both TVET institutions and the industry enhances graduate employability. Many graduates experience challenges in securing job opportunities due to a lack of these essential personal attributes, underscoring their significance in shaping employability prospects. A graduate with personal attributes such as teamwork, resilience, confidence, positive attitude and leadership is likely to get a job faster than the one who doesn't have them. This study recommends TVET institutions to embrace personal attributes and integrate them in the curriculum since employers place high value on and prioritize on when hiring. The study also recommends practical learning, mentorship and guidance that would go a long way in improving personal attributes of the TVET graduates

Alumni networks in any institution of learning connect the graduate with professional contacts that are very beneficial in employability, enhance institutional reputation, offer job opportunities and offer support and mentorship opportunities. With technological advancement, the study recommends TVET institutions to update the records of their trainees and use tracer data trace those have already graduated to form alumni associations.

## **5.5 Implications of the Findings on Theories, Policies and Practices**

This section dealt with recognizing the broader impact and significance of this study on theories, policies and practices. This study's results will inform educational policies and practical applications, shaping both theory and practice as outlined in Chapter Two.

### **5.5.1 Implications of the Findings on Theories**

The findings of this study impact the Knight and Yorke theory of employability and the Human Capital theory. The former stresses the significance of individual attributes interacting with the surrounding context, such as the labor market and educational setting. In light of these findings, trainer characteristics, curriculum alignment with industry needs, and access to teaching-learning resources emerge as key factors influencing graduates' preparedness for employment. Industrial engagement, through collaborations between educational institutions and industries, further enhances students' practical skills and industry knowledge

The second theory that is used in this study is Human Capital Theory. Human Capital Theory posits that investment in education, training, and skills development increase individuals' productivity and earning potential, thus enhancing their employability. In the perspective of the findings; that trainer characteristics, teaching-learning resources, training curriculum and industrial engagement represent investments in human capital.

A well-designed training curriculum equips graduates with relevant knowledge and skills, increasing their human capital and making them more attractive to employers. On the other hand, adequate teaching-learning resources enhance the quality of education and contribute to the accumulation of human capital among students.

Additionally, effective trainers play a critical role in transferring knowledge and skills to students, thereby enhancing their human capital. Further, industrial engagement provides opportunities for students to apply their knowledge and skills in real-world settings, further enhancing their human capital and employability.

In summary, the Knight and Yorke theory of employability and the Human Capital Theory underscore the importance of investments in education, training, and skills development in enhancing graduates' employability. The findings highlight the significance of trainer characteristics, teaching-learning resources, training curriculum and industrial engagement in shaping graduates' employability skills in Meru County. By understanding and leveraging these factors, educational institutions and policymakers can better prepare graduates for the demands of the labor market.

#### **5.5.2 Implications of the findings on policies**

The findings of the study have implications on the existing TVET policies. In the area of trainer characteristics, the study suggests TVET institutions need of setting and enforcing standards for trainer qualifications to ensure trainers possess necessary pedagogical skills, experience and expertise to effectively impart employability skills to the trainees. The study also suggests enhanced purposive collaboration and partnership of TVET institutions with industries to align trainer competencies and skills with industry needs. This calls for policies that support trainers' capacity building, in-house training, and training on use of modern tools and equipment and exposure to latest market trends through linkage to the industries. Further, human resource development policies should take into account gender discrepancies.



The study advocates provision of adequate modern and technology driven teaching-learning resources which includes physical infrastructure, ICT infrastructure, tools and equipment and learning materials. Government funding and infrastructure development are crucial for ensuring access to modern tools, equipment, and technology thus policies on allocation of resources for technical training education need to be reviewed with the view of increasing funding.

In the area of training curriculum, the study suggests TVET stakeholders such as trainers, governments, and business leaders need to work together to modify curricula and create regulations that support teamwork as well as industry driven curriculum to solve the issue of skill mismatch. Further, the study suggests adaption of Competency-Based Education and Training (CBET) models in TVET institutions and alignment of the programs with the current government goals of bottom-up economic models; Bottom-up Economic Transformation Agenda (BETA).

In the area of industrial engagements, partnership and collaboration policies should be promoted in order to provide valuable opportunities for trainees to gain hands-on experience, access internships, and develop practical skills aligned with industry needs. This would address the mismatch between TVET programmes and labour market needs. The study equally suggests exposure of trainees and graduates to dual vocational training where TVET institutions and the industry share the responsibility of providing technical and vocational education by preparing trainees for effective participation in the labor market thus improving graduate employability. Further, the policies on attachment and internship should ensure only experts' trainers are sent in the field for assessments. It is out of the policies that the practices are shaped.

### **5.5.3 Implications of the findings on practices**

The findings of this study have implications on the practices within TVET institutions in that it has focused on exploring the relationship between institutional factors and the development of employability skills among Technical and Vocational Education and Training (TVET) graduates in Meru County. Some practices that could be informed by the findings of this research are:

Regarding trainer characteristics, training and professional development programs for TVET trainers are important. TVET trainers play a crucial role in imparting employability skills to trainees. Research findings can inform the development of training and professional development programs for trainers, focusing on enhancing their ability to effectively train and assess employability skills.

On the issue of curriculum development in TVET institutions, insights from this study will guide TVET institutions in refining their curriculum to better align with the development of employability skills by closely working with the industry in curriculum development and review as well as for expert guidance. TVET Institutions can incorporate findings regarding effective teaching methods, practical training, and industry-relevant competencies into their curriculum design. The understanding how institutional factors affect the development of employability skills will aid in designing more impactful internship, attachments and on-the-job programs, providing relevant experiences and opportunities for skill enhancement.

### **5.6 Recommendations for Further Studies**

This research was undertaken in Public TVET institutions in Meru County and the study covered four independent variables mainly influence of; trainer characteristic, teaching-

learning resources, training curriculum and industrial engagement. The moderating variable was personal attributes while the dependent variable was development of employability skills of TVET graduates. The location of the study was Public TVET institutions in Meru County, Kenya. Considering the scope, delimitations and the findings of the study, it deduced and opened up some areas of recommendations for further studies.

The following areas have been recommended for further studies;

The study was conducted in Public TVET institutions in Meru County, with potential generalization to other counties in Kenya. However, there's a need for further research to encompass Private TVET institutions. The study focused on the development of employability skills among TVET graduates. Future studies, in collaboration with the industry, could cover areas and methods of re-tooling or retraining TVET graduates.

The findings revealed that none of the sampled institutions sent expert trainers to assess their trainees; instead, they relied on workplace supervisors' reports. Financial constraints were cited as a key challenge. A comprehensive study is warranted to assess the implications of the current TVET funding model and e-citizen fiscal collection on the timely provision of teaching-learning resources, industrial attachment in public TVET institutions in Kenya.

There is scant literature on dual vocational training in Kenya. Future research could investigate the benefits and challenges of implementing a dual vocational system in Kenya to enhance the development of employability skills. Additionally, future studies could explore how TVET programs foster personal attributes in trainees and how these attributes translate into the development of specific employability skills valued by employers across industries.

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## APPENDICES

### Appendix I: Respondent's Consent Letter

Lucy Ndumba Mutembei  
Kenya Methodist University  
P.O. Box 267-60200

Dear respondent,

I am writing to request for consent to participate in my study which will help me to actualize my academic research that investigates **the Nexus between Institutional Factors and Development of Employability Skills of TVET Graduates in Meru County, Kenya**. This research intends to enable educational stakeholders put into practice these proficiencies and others in ensuring that they become even better stewards to secondary schools' funds.

#### **Procedure to be followed**

The specific questions in the interviews and questions are organized from part one to seven. The first part contains questions related to background information, while the other parts are organized based on the five objectives of the study. The questions asked in the questionnaires are closed ended with an ordinal Likert scale of 1 to 5. You are required to answer the questions in a period of 20 minutes while the interview questions will take 30 minutes. Kindly note that you are not obligated to participate in the study if you feel not like participating. In case you find out that you would not wish to answer a specific question, simply skip it.

#### **Discomforts and risks**

In this study, there is no risk of participating in the research. The reputation of the participant will also not be injured. The respondent is welcome to discontinue participation in the study at any time, should one wish to do so due to discomfort. You may also stop the interview at any time.

#### **Benefits**

Your participation in this study will be key in ensuring that various stakeholders get to understand how institutional factors, development of employability skills and personal attributes of TVET graduates influence their employability.

#### **Rewards**

Please note that you will not be rewarded or receive any favors if you choose to take part in the study.

**Confidentiality**

The study will maintain confidentiality on the personal details of the respondents. To ensure this is done, the interviews and questionnaires will not have any sections requesting their names, telephone numbers or emails. Further the study will maintain privacy on the responses of the respondents hence secure the answered questionnaires in a safe place.

**Contact Information**

In case you have any further inquiry on the details of the study, do not hesitate to contact me on ndumbalucy23@gmail.com. You can also reach out to my supervisors who are kibaara.tarsilla@kemu.ac.ke and paul.maku@kemu.ac.ke.

Please provide your signature below as a way of agreeing that you consent in participating in this study.

**Participant’s Statement**

I agree to participate as a respondent and will give relevant information on the questions asked. I have understood that my responses will be used for this study’s purpose and have voluntarily made a decision to participate.

Signature of the respondent.....Date.....

**Investigator’s Statement**

I, the undersigned, have explained to the volunteer in a language s/he understands the procedures to be followed in the study and the risks and the benefits involved.

Name of Interviewer..... Date.....

Interviewer Signature.....



## Appendix II Questionnaire for Trainees

The purpose of this questionnaire is to find out the nexus between institutional factors and development of employability skills of TVET graduates in Meru County. Please answer all the questions to the best of your knowledge. The information which you will provide will be treated with utmost confidentiality and will only be used for the purpose of this study and not any other purpose.

Do not write your name or any other details in this questionnaire that may reveal your identity.

### SECTION A: Background Information

Please tick (√) where appropriate to provide the needed information on the spaces provided.

1) Name of your Institution.....

2) Course Enrolled:

Diploma in Business Management

Diploma Building & Civil Engineering

3) Age: Below 18 years       18-24 years       25-30 years   
31-40 years       Above 41

4) Gender:      Male       Female

**SECTION B: Influence of Trainers Characteristics on development of employability skills of TVET Graduates**

5) For the statements listed below, on influence of **Trainers Characteristics** on development of employability skills of TVET graduates, please indicate by **ticking (√)** whether you; Strongly Agree, Agree, Not Sure, Disagree or Strongly Disagree against each of them. In a scale of 1-5 where; 1= Strongly Disagree; 2 = Disagree; 3= Moderately Agree; 4= Agree; 5= Strongly Agree indicate the level of agreement or disagreement.

No	Trainer Characteristics	1	2	3	4	5
		SD	D	MA	A	SA
1	All my trainers education level is adequate to handle their area of expertise in practical's					
2	All my trainers education level is adequate to handle their area of expertise in theory					
3	All my trainers are knowledgeable and understand the subject matter in handling practical's					
4	All my trainers are knowledgeable and understand the subject matter in handling theory					
5	All my trainers are experienced and they understand the subject matter					
6	All my trainers have positive attitude towards instruction delivery in their area of training					

6) In what ways do you think trainer's characteristics influence development of employability skills of TVET Graduates?

7) .In what ways do you think trainer's characteristics influence development of employability skills of TVET Graduates?

**SECTION C: Influence of Teaching-Learning Resources on development of employability skills of TVET Graduates**

8) Please indicate to what extent **availability and adequacy of Teaching-Learning resources** in your institution which may influence development of employability skills. Please indicate by **ticking (√)** whether you; Strongly Agree (SA), Agree (A), Moderately Agree (MA), Disagree (D) or Strongly Disagree (SD) against each of them. In a scale of 1-5 where; 1= Strongly Disagree; 2 = Disagree; 3= Moderately Agree; 4= Agree; 5= Strongly Agree indicate the level of agreement or disagreement.

No	Adequacy of Teaching-Learning Resources	1	2	3	4	5
		SD	D	MA	A	SA
1	My institution has adequate physical infrastructure					
2	In my institution, teaching-learning materials are available					
3	My institution has adequate tools and equipment for practical's					
4	My institution has adequate ICT hardware					
5	My institution has adequate ICT software					
6	My institution has enough technical support staff to assist the trainers during practical's					

9) In what ways do you think availability and adequacy of Teaching-Learning resources influence development of employability skills of TVET Graduates? Please explain your answers

10) What do you think should be done to improve availability and adequacy of Teaching-Learning resources in order to increase development of employability skills of TVET graduates?

**SECTION D: Influence of Training Curriculum on development of employability skills of TVET Graduates**

11) For the statements listed below, how does **Training Curriculum** in your institution influence development of employability skills. Please indicate by **ticking (√)** whether you Strongly Agree (SA), Agree (A), Moderately Agree (MA), Disagree (D) or Strongly Disagree (SD) Disagree against each of them. In a scale of 1-5 where; 1= Strongly Disagree; 2 = Disagree; 3= Moderately Agree; 4= Agree; 5= Strongly Agree indicate the level of agreement or disagreement.

No	Training Curriculum	1	2	3	4	5
		SD	D	MA	A	SA
1	My course is relevant to the job market to enable me acquire employment.					
2	The course content is relevant and of quality to enable me acquire employment					
3	The curriculum is aligned to the changing market needs					
4	My trainers' instructional methods are effective for me to acquire and retain the materials I am learning					
5	My trainers are available and accessible for career guidance and counseling					
6	I am attaining the required skills and competencies needed for employment					
7	I am adequately exposed to practical sessions					

12) In what ways do you think training curriculum influences development of employability skills of TVET Graduates? Please explain your answers

13) What you think should be done to improve training curriculum in order to increase development of employability skills of TVET graduates.

**SECTION E: Influence of Industrial Engagement on development of employability skills of the TVET Graduates.**

14) For the statements listed below, on influence of **Industrial Engagement** on development of employability skills of TVET graduates, please indicate by **ticking (√)** whether you; Strongly Agree (SA), Agree (A), Moderately Agree (MA), Disagree (D) or Strongly Disagree (SD) against each of them. In a scale of 1-5 where; 1= Strongly Disagree; 2 = Disagree; 3= Moderately Agree; 4= Agree; 5= Strongly Agree indicate the level of agreement or disagreement.

No	Industrial Engagement	1	2	3	4	5
		SD	D	MA	A	SA
1	My institution has connections with the industry that provide trainees with industrial attachments					
2	My institution has connections with the industry that provide trainees with internships					
3	During industrial attachments, my institution sends expert trainers to assess and offer expert guidance and support					
4	During attachments, I work closely with my supervisor for expert guidance and support.					
5	I am exposed to dual vocational training that will help me secure a job upon completion of my studies					
6	My institution has collaborations and partnerships with the industry					

15) In what ways do you think industrial engagement influenced development of employability skills of TVET Graduates? Please explain your answers

16) What you think should be done to improve industrial engagement in order to increase development of employability skills of TVET graduates.

**SECTION F: Personal Attributes of TVET Graduates**

17) This section seeks information on whether **Graduate Attributes** of graduates which is an moderating variable for this study enhances development of employability skills of TVET graduates. For the statements listed below, please indicate by **ticking (√)** whether you; Strongly Agree (SA), Agree (A), Moderately Agree (MA), Disagree (D) or Strongly Disagree (SD) against each of them. In a scale of 1-5 where; 1= Strongly Disagree; 2 = Disagree; 3= Moderately Agree; 4= Agree; 5= Strongly Agree indicate the level of agreement or disagreement.

No	Personal Attributes of TVET Graduates	1	2	3	4	5
		SD	D	MA	A	SA
1	I am confident in my ability to secure a job after completing TVET training?					
2	I have a positive attitude towards the course a I am taking					
3	I am positive that I will get the job that I am trained for upon completion					
4	To a large extent, I believe that resilience is a main personal attribute that I need to secure a job					
5	I have resilience as my personal attributes that will enable me secure a job					
6	My institution has alumni networks that assist TVET graduates secure employment					

18) What other personal attributes are required to enable a graduate to secure a job?  
Please explain.

19) In what ways do you think graduate attributes influence development of employability skills? Please explain your answers

20) What do you think should be done to enhance graduate attributes in order to improve development of employability skills of TVET graduates.

**SECTION G: Development of Employability Skills of TVET Graduates**

21) This section seeks information on development of employability skills of TVET graduates which is a dependent variable for this study. For the statements listed below, please indicate by ticking (√) whether you; Strongly Agree (SA), Agree (A), Moderately Agree (MA), Disagree (D) or Strongly Disagree (SD) against each of them. In a scale of 1-5 where; 1= Strongly Disagree; 2 = Disagree; 3= Moderately Agree; 4= Agree; 5= Strongly Agree indicate the level of agreement or disagreement.

No	Development of Employability Skills of TVET Graduates	1	2	3	4	5
		SD	D	MA	A	SA
1	My institution has done a lot in developing programmes that enhance my leadership skills					
2	My institution has done a lot in developing programmes that enhance my communication skills					
3	My institution is preparing me adequately to work in a team environment after completing training					
4	TVET training is instilling confidence to enable me secure a job					
5	TVET training is preparing me to acquire problem solving skills					
6	TVET training is preparing me to acquire critical thinking skills					

22) To what extent is your institution preparing you for competitive TVET jobs in Kenya and other countries? Please explain.

23) What do you think should be done to enhance the development of employability skills of TVET graduates?

### Appendix III: Questionnaire for Trainers

The purpose of this questionnaire is to find out the nexus between institutional factors and development of employability skills of TVET graduates in Meru County. Please answer all the questions to the best of your knowledge. The information which you will provide will be treated with utmost confidentiality and will only be used for the purpose of this study and not any other purpose.

Do not write your name or any other details in this questionnaire that may reveal your identity.

#### SECTION A: Background Information

Please tick (✓) where appropriate to provide the needed information on the spaces provided.

1. Name of your Institution.....

2. Course Trainer:

Diploma in Business Management

Diploma in Building & Civil Engineering

3. Age:           Below 18 years            18-24 years            25-30 years   
                  31-40 years            Above 41            42- 60 year   
                  Above 60 year

4. Gender:           Male            Female

5. What is your Education level?

Certificate level

Diploma

Higher National Diploma

Degree

Masters

PhD



6. What is the number of years you have worked as a trainer in TVET institutions

- 1 - 5 years     6 - 10 years     10 - 15 years  
 16 - 20 years     21 - 30years     above 30 years

7. What is the number of years that you have worked in the current station as a trainer?

- 1 - 5 years     6 - 10 years     10 - 15 years  
 16 - 20 years     21 - 30years     above 30 years

**SECTION B: Influence of Trainers Characteristics on development of employability skills of TVET Graduates**

8. For the statements listed below, on influence of Trainers Characteristics on development of employability skills of TVET graduates, please indicate by ticking (√) whether you; Strongly Agree, Agree, Not Sure, Disagree or Strongly Disagree against each of them. In a scale of 1-5 where; 1= Strongly Disagree; 2 = Disagree; 3= Moderately Agree; 4= Agree; 5= Strongly Agree indicate the level of agreement or disagreement.

No	Trainer Characteristics	1	2	3	4	5
		SD	D	MA	A	SA
1	My education level is adequate to handle my area of expertise in practical's					
2	My education level is adequate to handle my area of expertise in theory					
3	I am knowledgeable and understand the subject matter content in handling practical's					
4	I am knowledgeable and understand the subject matter content in handling theory					
5	I am experienced in my area of specialization					
6	I have positive attitude towards instruction delivery in my area of training					

9. In what ways do you think trainer’s characteristics influence development of employability skills of TVET graduate? Please describe below

10. What do you think should be done to improve trainer’s characteristics in order to increase development of employability skills of TVET graduates?

**SECTION C: Influence of Teaching-Learning Resources on Development of Employability Skills of TVET Graduates**

11. For the statements listed below, on influence of Teaching-Learning Resources on development of employability skills of TVET graduates, please indicate by ticking (√) whether you; Strongly Agree, Agree, Not Sure, Disagree or Strongly Disagree against each of them. In a scale of 1-5 where; 1= Strongly Disagree; 2 = Disagree; 3= Moderately Agree; 4= Agree; 5= Strongly Agree indicate the level of agreement or disagreement.

No	Adequacy of Teaching-Learning Resources	1	2	3	4	5
		SD	D	MA	A	SA
1	My institution has adequate physical infrastructure					
2	In my institution, teaching-learning materials are available					
3	My institution has adequate tools and equipment for practical’s					
4	My institution has adequate ICT hardware					
5	My institution has adequate ICT software					
6	My institution has enough technical support staff to assist the trainers during practical’s					

12. In what ways do you think availability and adequacy of Teaching-Learning resources influence development of employability skills of TVET graduates? Please describe below

13. What do you think should be done to improve Teaching-Learning resources in order to increase development of employability skills of TVET graduates?

**SECTION D: Influence of Training Curriculum on Employability of TVET Graduates**

**14.** For the statements listed below, on influence of Training Curriculum on development of employability skills of TVET graduates, please indicate by ticking (√) whether you; Strongly Agree, Agree, Not Sure, Disagree or Strongly Disagree against each of them. In a scale of 1-5 where; 1= Strongly Disagree; 2 = Disagree; 3= Moderately Agree; 4= Agree; 5= Strongly Agree indicate the level of agreement or disagreement.

No	Training Curriculum	1	2	3	4	5
		SD	D	MA	A	SA
1	My course is relevant to the job market to enable my graduates acquire employment					
2	The course content is relevant and of quality to enable my graduates acquire employment					
3	I am involved in curriculum development					
4	The curriculum is aligned to the changing market needs					
5	I have the required skills and competencies needed to prepare my trainees for employment					
6	My instructional methods / styles are effective in helping my trainees acquire and retain the content learnt					
7	I adequately expose my trainees to practical sessions					

**15.** In what ways do you think training curriculum influences development of employability skills of TVET graduates? Please describe below

**16.** What you think should be done to improve the training curriculum in order to increase development of employability skills of TVET graduates.

**SECTION E: Influence of Industrial Engagement on Employability of the TVET Graduates.**

17. For the statements listed below, on influence of Industrial Engagement on development of employability skills of TVET graduates, please indicate by ticking (√) whether you; Strongly Agree (SA), Agree (A), Moderately Agree (MA), Disagree (D) or Strongly Disagree (SD) against each of them. In a scale of 1-5 where; 1= Strongly Disagree; 2 = Disagree; 3= Moderately Agree; 4= Agree; 5= Strongly Agree indicate the level of agreement or disagreement.

No.	Industrial Engagement	1	2	3	4	5
		SD	D	MA	A	SA
1	My institution has connections with the industry that provide trainees with industrial attachments					
2	My institution has connections with the industry that provide trainees with internships					
3	During industrial attachments, I am sent by my institution as an expert's trainer to assess and offer expert guidance and support to the trainees.					
4	During attachments, the trainee and trainer work closely with the supervisor to offer experts guidance and support.					
5	My trainees are exposed in dual vocational training that help them to secure jobs after completion					
6	My Department has collaborations and partnerships with the industry help trainees secure jobs after completion.					

18. How else can TVET institutions be involved with the industry on development of employability skills of TVET graduates? Give suggestions.

19. What do you think should be done to improve industrial engagement in order to increase development of employability skills of TVET graduates?

**SECTION F: Personal Attributes of TVET Graduates**

**20.** This section seeks information on whether graduate attributes of graduates which is an moderating variable for this study enhances development of employability skills of TVET graduates. For the statements listed below, please indicate by ticking (√) whether you; Strongly Agree (SA), Agree (A), Moderately Agree (MA), Disagree (D) or Strongly Disagree (SD) against each of them. In a scale of 1-5 where; 1= Strongly Disagree; 2 = Disagree; 3= Moderately Agree; 4= Agree; 5= Strongly Agree indicate the level of agreement or disagreement. Please tick (√) only one choice for each statement.

No	Graduate Attributes of TVET Graduates	1	2	3	4	5
		SD	D	MA	A	SA
1	My graduates have the confident to secure jobs					
2	My graduates have positive attitude towards the course they took					
3	My graduates are positive that they will get the job that they were trained on					
4	To a large extent, I believe resilience is a main personal attribute needed to secure a job					
5	My graduates have resilience to make them secure jobs after completion					
6	My institution has alumni networks that assist TVET graduates to secure employment					

**21.** What other graduate attributes do your graduates possess that enabled them secure jobs upon completion of their training. Please explain

**22.** What do you think should be done on graduate attributes to enhance development of employability skills of TVET graduates?

**SECTION G: Development of Employability Skills of TVET Graduates**

**23.** This section seeks information on development of employability skills of TVET graduates which is a dependent variable for this study. For the statements listed below, please indicate by **ticking (√)** whether you; Strongly Agree (SA), Agree (A), Moderately Agree (MA), Disagree (D) or Strongly Disagree (SD) against each of them. In a scale of 1-5 where; 1= Strongly Disagree; 2 = Disagree; 3= Moderately Agree; 4= Agree; 5= Strongly Agree indicate the level of agreement or disagreement.

No	Development of Employability Skills of TVET Graduates	1	2	3	4	5
		SD	D	MA	A	SA
1	My institution has done a lot in developing programmes that enhance graduates leadership and mentorship skills					
2	My institution has done a lot in developing programmes that enhance graduate's communication skills.					
3	TVET training has prepared my graduates adequately to work in team environment					
4	TVET training has instilled confidence to my graduates to enable them secure jobs					
5	TVET training has prepared the graduates to acquire problem solving skills					
6	TVET training has prepared the graduates to acquire critical thinking skills					

**24.** To what extent does your institution prepare the graduates for competitive TVET jobs in Kenya and other countries? Please explain

**25.** What do you think should be done to enhance the development of employability skills of TVET graduates?

**Thank you for your cooperation and your time to respond to this questionnaire.**

## Appendix IV Questionnaire for Graduates

The purpose of this questionnaire is to find out the nexus between institutional factors and development of employability skills of TVET graduates in Meru County. Please answer all the questions to the best of your knowledge. The information which you will provide will be treated with utmost confidentiality and will only be used for the purpose of this study and not any other purpose.

Do not write your name or any other details in this questionnaire that may reveal your identity.

### SECTION A: Background Information

Please tick (√) where appropriate to provide the needed information on the spaces provided.

1) Name of your Institution.....

2) Course Enrolled:

- a.  Diploma in Business Management
- b.  Diploma Building & Civil Engineering

3) Age:      Below 18 years       18-24 years       25-30 years   
                    i. 31-40 years       Above 41

4) Gender:    Male       Female

**SECTION B: Influence of Trainers Characteristics on development of employability skills of TVET Graduates**

5) For the statements listed below, on influence of **Trainers Characteristics** on development of employability skills of TVET graduates, please indicate by **ticking (√)** whether you; Strongly Agree, Agree, Not Sure, Disagree or Strongly Disagree against each of them. In a scale of 1-5 where; 1= Strongly Disagree; 2 = Disagree; 3= Moderately Agree; 4= Agree; 5= Strongly Agree indicate the level of agreement or disagreement.

No	Trainer Characteristics	1	2	3	4	5
		SD	D	MA	A	SA
1	All my trainers education level was adequate to handle their area of expertise in practical's					
2	All my trainers education level was adequate to handle their area of expertise in theory					
3	All my trainers were knowledgeable and understand the subject matter in handling practical's					
4	All my trainers were knowledgeable and understand the subject matter in handling theory					
5	All my trainers were experienced and they understand the subject matter					
6	All my trainers had positive attitude towards instruction delivery in their area of training					

6) In what ways do you think trainer's characteristics have influenced development of employability skills of TVET Graduates?

7) What do you think should be done to improve trainer's characteristics in order to increase development of employability skills of TVET graduates?



**SECTION C: Influence of Teaching-Learning Resources on development of employability skills of TVET Graduates**

6) Please indicate to what extent availability and adequacy of Teaching-Learning resources in your institution which may influence development of employability skills. Please indicate by ticking (√) whether you; Strongly Agree (SA), Agree (A), Moderately Agree (MA), Disagree (D) or Strongly Disagree (SD) against each of them. In a scale of 1-5 where; 1= Strongly Disagree; 2 = Disagree; 3= Moderately Agree; 4= Agree; 5= Strongly Agree indicate the level of agreement or disagreement.

No	Adequacy of Teaching-Learning Resources	1	2	3	4	5
		SD	D	MA	A	SA
1	My institution had adequate physical infrastructure					
2	In my institution, teaching-learning materials were available					
3	My institution had adequate tools and equipment for practical's					
4	My institution had adequate ICT hardware					
5	My institution had adequate ICT software					
6	My institution had enough technical support staff to assist the trainers during practical's					

- 7) In what ways do you think availability and adequacy of Teaching-Learning resources influence development of employability skills of TVET Graduates? Please explain your answers
- 8) What do you think should be done to improve availability and adequacy of Teaching-Learning resources in order to increase development of employability skills of TVET graduates?

**SECTION D: Influence of Training Curriculum on development of employability skills of TVET Graduates**

9) For the statements listed below, how does Training Curriculum in your institution influence development of employability skills. Please indicate by ticking (√) whether you Strongly Agree (SA), Agree (A), Moderately Agree (MA), Disagree (D) or Strongly Disagree (SD) Disagree against each of them. In a scale of 1-5 where; 1= Strongly Disagree; 2 = Disagree; 3= Moderately Agree; 4= Agree; 5= Strongly Agree indicate the level of agreement or disagreement.

No	Training Curriculum	1	2	3	4	5
		SD	D	MA	A	SA
1	My course is relevant to the job market to enable me acquire employment.					
2	The course content was relevant and of quality to enable me acquire employment					
3	The curriculum was aligned to the changing market needs					
4	My trainers' instructional methods were effective for me to acquire and retain the materials I was learning					
5	My trainers were available and accessible for career guidance and counseling					
6	I attained the required skills and competencies needed for employment					
7	I was adequately exposed to practical sessions					

10) In what ways do you think training curriculum has influenced development of employability skills of TVET Graduates? Please explain your answers

11) What you think should be done to improve training curriculum in order to increase development of employability skills of TVET graduates.

**SECTION E: Influence of Industrial Engagement on development of employability skills of TVET Graduates.**

12) For the statements listed below, on influence of Industrial Engagement on development of employability skills of TVET graduates, please indicate by ticking (√) whether you; Strongly Agree (SA), Agree (A), Moderately Agree (MA), Disagree (D) or Strongly Disagree (SD) against each of them. In a scale of 1-5 where; 1= Strongly Disagree; 2 = Disagree; 3= Moderately Agree; 4= Agree; 5= Strongly Agree indicate the level of agreement or disagreement.

No	Industrial Engagement	1	2	3	4	5
		SD	D	MA	A	SA
1	My institution had connections with the industry that provided trainees with industrial attachments					
2	My institution had connections with the industry that provided trainees with internships					
3	During industrial attachments, my institution sent expert trainers to assess and offer expert guidance and support					
4	During attachments, I worked closely with my supervisor for expert guidance and support.					
5	I was exposed to dual vocational training that helped me secure a job					
6	My institution had collaborations and partnerships with the industry					

13) In what ways do you think industrial engagement influenced development of employability skills of TVET Graduates? Please explain your answers

14) What you think should be done to improve industrial engagement in order to increase development of employability skills of TVET graduates.

**SECTION F: Personal Attributes of TVET Graduates on development of employability skills of TVET graduates**

15) This section seeks information on whether Graduate Attributes of graduates which is an moderating variable for this study enhances development of employability skills of TVET graduates. For the statements listed below, please indicate by ticking (√) whether you; Strongly Agree (SA), Agree (A), Moderately Agree (MA), Disagree (D) or Strongly Disagree (SD) against each of them. In a scale of 1-5 where; 1= Strongly Disagree; 2 = Disagree; 3= Moderately Agree; 4= Agree; 5= Strongly Agree indicate the level of agreement or disagreement.

No	Graduate Attributes of TVET Graduates	1	2	3	4	5
		SD	D	MA	A	SA
1	I have the confident to secure a job					
2	I have a positive attitude towards the course a I took					
3	I am positive that I will always get the job that I trained for					
4	To a large extent, I believe that resilience is a main personal attribute that is needed to secure and retain a job					
5	I have resilience as my personal attributes that has enabled me secure a job					
6	My institution had alumni networks that assist TVET graduates secure employment					

16) In what ways do you think your attributes have influenced development of your employability skills? Please explain your answers

17) What do you think should be done to enhance graduate attributes in order to improve development of employability skills of TVET graduates

**SECTION G: Development of Employability Skills of TVET Graduates**

18) This section seeks information on development of employability skills of TVET graduates which is a dependent variable for this study. For the statements listed below, please indicate by ticking (√) whether you; Strongly Agree (SA), Agree (A), Moderately Agree (MA), Disagree (D) or Strongly Disagree (SD) against each of them. In a scale of 1-5 where; 1= Strongly Disagree; 2 = Disagree; 3= Moderately Agree; 4= Agree; 5= Strongly Agree indicate the level of agreement or disagreement.

No	Development of Employability Skills of TVET Graduates	1	2	3	4	5
		SD	D	MA	A	SA
1	My institution did a lot in developing programmes that enhanced graduates leadership and mentorship skills					
2	My institution did a lot in developing programmes that enhanced graduate’s communication skills.					
3	TVET training has prepared me adequately to work in a team environment					
4	TVET training instilled confidence to me to enable me secure a job					
5	TVET training prepared me to acquire problem solving skills					
6	TVET training prepared me to acquire critical thinking skills					

19) To what extent did your institution prepare you for competitive TVET jobs in Kenya and other countries? Please explain

20) What do you think should be done to enhance development of employability skills of TVET graduates?

**Thank you for your cooperation and your time to respond to this questionnaire.**

**Appendix V: Interview Guide for HODs**

Graduates of Diploma in Business Management and Building & Civil Engineering Courses

Interview Guide for HoDs of Diploma in Business Management and Building & Civil Engineering departments

**Introduction (Researcher)**

**SECTION A: Introduction of the Participants**

Name of the institution -----

Department -----

Position in the Institution.....

**Introduction (Researcher)**

**SECTION A: Introduction of the Participants**

Name of the Institution -----

Gender: Male [ ] Female [ ]

**SECTION B: Influence of Trainers Characteristics on Development of Employability Skills of TVET Graduates**

- 1) What trainer’s characteristics do you look for when recruiting the trainers for the job? Please explain? ( probe for trainers characteristics such as; education level, being knowledgeable in the subject matter , experience, altitude)
- 2) In relation to the trainer characteristics in question ONE above, in what ways do you think trainer characteristics influence TVET graduate employability?
- 3) What do you think should be done to improve trainers’ characteristics in order to increase development of employability skills of TVET graduates?

**SECTION C: Influence of availability and adequacy of Teaching-Learning Resources on Development of Employability Skills of TVET Graduates**

- 4) Please explain whether Teaching-Learning resources are available and adequate in the following departments
- 5) In what ways do you think availability and adequacy of Teaching-Learning resources influence TVET graduate employability?
- 6) What do you think should be done to improve Teaching-Learning resources in order to increase development of employability skills of TVET graduates?

**SECTION D: Influence of Training Curriculum on Development of Employability Skills of TVET Graduates**

- 7) How do you conduct curriculum development in your institution Please explain  
No  
Still using the old curriculum.
- 8) In what ways do you think training curriculum influence TVET graduate employability? (Probe the relevance of the curriculum, instructional methods, career guidance and counseling,
- 9) What do you think should be done to improve training curriculum in order to increase development of employability skills of TVET graduates?

**SECTION E: Influence of Industrial Engagement on Development of Employability Skills of TVET Graduates**

- 10) What connections with industry does your institution have that are able to provide practical experiences? (Probe for industrial attachments and internships and dual vocational training)?
- 11) a) Does your institution send expert trainers to assess, offer expert guidance and support to the trainees during attachment and internships?  
b) What challenges do you face in relation to the question 11a?
- 12) In what ways do you think industrial engagements influence TVET graduate employability?



13) What do you think should be done to improve industrial engagements in order to increase development of employability skills of TVET graduates?

**SECTION F: Personal Attributes on Development of Employability Skills of TVET Graduates**

14) How does your institution develop graduate attributes for the trainees and graduates (confidence, positive attitudes, resilience)? Please explain

a) Does your institution have alumni networks?

b) In what ways do you think alumni networking enhance development of employability skills of TVET graduates?

15) What do you think should be done on graduate attributes to enhance development of employability skills of TVET graduates?

**SECTION G: Development of Employability Skills of TVET graduates**

16) a) Does your institution participate in exchange programs for the trainees and trainers?

b) If yes, what are the benefits of exchange programs in relation to development of employability skills?

17) How has your institution prepared TVET graduates for competitive jobs in Kenya and other countries (probe Communication, Problem solving, Team work and Leadership) Please explain

18) What do you think should be done to enhance the development of employability skills of TVET graduates?

**THANK YOU**

**Appendix VI: Interview Guide for Principals**

TVET institutions in Meru County

**Introduction (Researcher)**

**Section A: Introduction of the Participants**

Name of the Institution -----

Gender: Male [ ] Female [ ]

**Section B: Trainers Characteristics**

1) How do you recruit the trainers for the job in your institution? -----

2) What trainer’s characteristics do you look for when recruiting the trainers for the job? Please explain? ( probe for trainers characteristics such as;

- a) Education level - Probe the minimum level of education of TVET trainers that is needed and the actual education level of the trainers in the institution
- b) Being knowledgeable in the subject matter
- c) Experience - Probe for the years of the experience of the trainers in the department
- d) Altitude to their job
- e) Any other

3) How do you advance the characteristics among your trainers in your institution after recruitment? Please explain.....

**Section B: Availability and adequacy of Teaching-Learning resources**

4) What teaching-learning resources are available in your Institution? (Probe for physical infrastructure, ICT infrastructure and human resources including the technical staff and Academic staff)

5) Are they adequate for both theory and practical in relation to the number of Trainees that you have in all the departments? Please Explain-----

6) How do you acquire your physical and ICT infrastructure for your institution? Please Explain.....

**Section C: Influence of Training Curriculum on Employability of TVET Graduates**

7) To what extent do you think you adequately prepare your graduates for job markets? Please describe how..... (Probe the relevance of the curriculum, curriculum reviews, instructional methods, career guidance and counseling,

8) How often do you review your curriculum in your institutions -----

9) When was the curriculum in your institution reviewed last? -----

10) How do you develop new curriculum and how do you conduct curricula reviews? Please, briefly explain the process-----

**Section D: Industrial Engagement**

11) Does your institution have connections with industry that are able to provide practical experiences such as industrial attachments and internships? -----

12) If Yes, give a few examples -----

13) Does your institution send experts trainers to assess and offer expert guidance and support to the trainees during attachment and internships? -----

14) If yes, briefly explain the process of recruitment of assessors for experts' guidance and support during the internship and attachments.

15) a) Do you have any Partnerships and Collaborations with the industries in your Institution? -----

b) If yes, briefly explain the terms and the benefits of MOUs in you institution in relation to development of employability skills-----

16) How else can your institution be engaged with the industries to enable your trainees and graduates to develop employability skills? -----

**Section E: Development of Employability Skills of TVET graduates**

17) How does the curriculum in your institution prepare your graduates to develop the following employability skills;

- i) Leadership and Mentorship
- ii) Communication skills
- iii) Building team environment
- iv) Building confidence
- v) Developing problem solving and critical thinking skills
- vi) Developing Entrepreneurial skills

18) a) Do you have Exchange Programmes for your trainees and trainers in your Institution? -----

b) If yes to (18 a) briefly explain the functions and benefits of the Programme in relation to development of employability skills in your institution. -----

-----  
-----

**SECTION G: Personal Attributes**

19) In your opinion, do you think personal attributes contribute to employability of TVET graduates? -----

20) How does your institution develop personal attributes for your trainees and graduates? Please explain -----

21) Do you have Alumni association? -----

22) If yes to No 21, what is the functions and benefits of the association? Please Explain -----

23) Do you encourage your trainees and your graduates to join the Alumni Association? -----

24) Do you have anything to add?

**THANK YOU**

## **Appendix VII: Interview Guide for Key informants**

Representatives of Employers

### **Introduction (Researcher)**

#### **SECTION A: Introduction of the Participants**

1) Name of the Organization -----

Department -----

2) Position in the position in the organization.....

Gender: Male [ ] Female [ ]

#### **SECTION B: Influence of Trainers Characteristics on Development of Employability Skills of TVET Graduates**

3) Which trainer's characteristics do you think influence development of employability skills? Please explain? ( probe for trainers characteristics such as; education level, being knowledgeable in the subject matter , experience, altitude)

4) In relation to the trainer characteristics in question ONE above; in what ways do you think trainer characteristics influence TVET graduate employability?

5) What do you think should be done to improve trainers' characteristics in order to increase development of employability skills of TVET graduates?

**SECTION C: Influence of availability and adequacy of Teaching-Learning Resources on Development of Employability Skills of TVET Graduates**

- 6) What Teaching-Learning resources do you think should be available in TVET institutions to enhance development of employability skills?
  
- 7) Please explain whether you think TVET institutions have adequate Teaching-Learning resources for practicals
  
- 8) What do you think should be done to improve Teaching-Learning resources in order to increase development of employability skills of TVET graduates?

**Section D: Influence of Training Curriculum on Development of Employability Skills of TVET Graduates**

- 9) Please describe whether TVET graduates are adequately prepared for the job markets?
  
- 10) To what extent are your employees from TVET institutions able to handle the equipments available in your industry?
  
- 11) To what extent are you involved in curriculum development by TVET institutions?
  
- 12) What do you think should be done to improve training curriculum in order to increase development of employability skills of TVET graduates?

**SECTION E: Influence of Industry Engagement on Development of Employability Skills of TVET Graduates**

13) How do you recruit employees in your organization?

14) What do you look for when recruiting an employee?

15) Explain whether TVET institutions send expert trainers to assess and offer expert guidance and support to the trainees

16) How else can the industry (Employer) be engaged with TVET Institutions to enhance development of employability skills?

17) What do you think should be done to improve industrial engagements in order to increase development of employability skills of TVET graduates?

**SECTION F: Graduates Personal Attributes on Development of Employability Skills of TVET Graduates**

18) What attributes do you look for when employing fresh graduates? Please explain

19) How do you develop your employees when you find they don't have the employable attributes

20) What do you think should be done to improve graduate attributes to enhance development of employability skills of TVET graduates?

**SECTION G: Development of Employability Skills of TVET graduates**

21) What do you think should be done to enhance the development of employability skills of TVET graduates?

**THANK YOU**



**Appendix VIII: List of Registered TVETs in Meru County**

<b>NAME</b>	<b>CATEGORY</b>	<b>TYPE</b>	<b>REG NO</b>	<b>REG STATUSES</b>
The Meru National Polytechnic		Public	TVETA/PUBLIC/NP/0001/2016	Registered and Licensed
Nkabune Technical Training Institute	TVC	Public	TVETA/PUBLIC/TVC/0003/2015	Registered and Licensed
Karumo Technical Training Institute	TVC	Public	TVETA/PUBLIC/TVC/0024/2018	Registered and Licensed
Kiirua Technical Training institute	TVC	Public	TVETA/PUBLIC/TVC/0031/2016	Registered and Licensed
Mitunguu Technical Training Institute	TVC	Public	TVETA/PUBLIC/TVC/0005/2015	Registered and Licensed
Mukiria Technical Training Institute	TVC	Public	TVETA/PUBLIC/TVC/0006/2015	Registered and Licensed
Ithamare Vocational Training Centre	VTC	Public		Registered and Licensed
Githongo Youth Polytechnic	VCT	Public	TVETA/PUBLIC/VTC/0005/2017	Registered and Licensed
Gitie Vocational Training College	VCT	Public		Registered and Licensed
Kaelo Technical Training College	VCT	Public	TVETA/PUBLIC/TVC/0037/2018	Registered Only
Kagwampungu Vocation Training Center	VCT	Public	TVETA/PUBLIC/VTC/0151/2018	Registered and Licensed
Kanyakine Vocational Center	VCT	Public	TVETA/PUBLIC/VTC/0124/2016	Registered and Licensed
Karurune Vocational Training Center	VCT	Public	TVETA/PUBLIC/VTC/0075/2016	Registered and Licensed
Muraga TTI	VCT	Public		Registered Only

Kiirua Vocational Training Center	VCT	Public	TVETA/PUBLIC/VTC/0028/2016	Registered and Licensed
Kithiiri Vocational Training College	VCT	Public		Registered and Licensed
Kithoka Vocational Training Center.	VCT	Public	TVETA/PUBLIC/VTC/0125/2016	Registered and Licensed
Maua Vocational Training College	VCT	Public		Registered and Licensed
Koome Vocational Training Center	VCT	Public	TVETA/PUBLIC/VTC/0070/2017	Registered and Licensed
Mituntu Vocational Training College	VCT	Public		Registered and Licensed
Murugi Vocational Training Center	VCT	Public	TVETA/PUBLIC/VTC/0071/2018	Registered and Licensed
Muthara Vocational Training Centre	VCT	Public		Registered and Licensed
Mwiteria Vocational Training Center.	VCT	Public	TVETA/PUBLIC/VTC/0129/2016	Registered and Licensed
Uruku Vocational Training Authority	VCT	Public	TVETA/PUBLIC/VTC/0077/2018	Registered Only
Ruibi Youth Polytechnic	VCT	Public	TVETA/PUBLIC/VTC/0084/2017	Registered and Licensed
Meru YMCA Training Institute	VCT	Private	TVETA/PRIVATE/TVC/0261/2016	Registered and Licensed
Meru Institute of Business Studies	VCT	Private	TVETA/PUBLIC/TVC/0032/2018	Registered and Licensed
Salama Vocational Training Centre	VCT	Private		Registered and Licensed
Nyambene School of Professional Studies	VCT	Private	TVETA/PRIVATE/TVC/0131/2017	Registered and Licensed

Rehema Vocational Training Centre	VCT	Private	TVETA/PRIVATE/TVC/0135/2018	Registered and Licensed
United Africa College-Laare Branch	VCT	Private	TVETA/PRIVATE/TVC/0139/2017	Registered and Licensed
Sipet College of Professional Studies	VCT	Private	TVETA/PRIVATE/TVC/0266/2016	Registered and Licensed
Saviec School of Professional Studies	VCT	Private	TVETA/PRIVATE/TVC/0015/2015	Registered and Licensed

**Meru County Government 2018**



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DIRECTORATE OF POSTGRADUATE STUDIES

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May 16, 2023

Commission Secretary,  
National Commission for Science, Technology and Innovations,  
P.O. Box 30623-00100  
NAIROBI

Dear Sir/Madam,

RE: LUCY NDUMBA KIOGORA (REG. EDU-4-0049-1/2021)

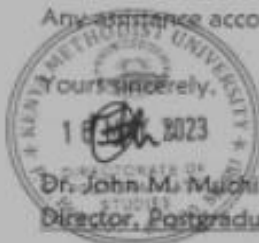
This is to confirm that the above named is a bona fide student of Kenya Methodist University, in the School of Education and Social Sciences, Department of Education undertaking a Doctoral Degree in Leadership and Education Management. She is conducting research on "The Nexus between Institutional Factors and Development of Employability Skills of Technical Training Institutions Graduates in Meru County, Kenya".

We confirm that her research proposal has been presented and approved by the University.

In this regard, we are requesting your office to issue a research license to enable her collect data.

Any assistance accorded to her will be highly appreciated.

Yours sincerely,



Dr. John M. Muchiri (PhD)  
Director, Postgraduate Studies

Cc: Dean SESS  
CoD, Education  
Postgraduate Co-ordinator-SESS  
Student Supervisors



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May 16, 2023

KeMU/ISERC/EDU/07/2023

LUCY NDUMBA KIOGORA  
EDU-4-0049-1/2021

Dear Lucy,

**SUBJECT: THE NEXUS BETWEEN INSTITUTIONAL FACTORS AND DEVELOPMENT OF EMPLOYABILITY SKILLS OF TECHNICAL TRAINING INSTITUTIONS GRADUATES IN MERU COUNTY, KENYA**

This is to inform you that Kenya Methodist University Institutional Scientific Ethics and Review Committee has reviewed and approved your research proposal. Your application approval number is KeMU/ISERC/EDU/07/2023. The approval period is 16<sup>th</sup> May, 2023 – 16<sup>th</sup> May 2024.

This approval is subject to compliance with the following requirements:-

- I. Only approved documents including (informed consents, study instruments, MTA) will be used.
- II. All changes including (amendments, deviations, and violations) are submitted for review and approval by Kenya Methodist University Institutional Scientific Ethics and Review Committee.
- III. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to KeMU ISERC within 72 hours of notification.
- IV. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to KeMU ISERC within 72 hours.

- V. Clearance for export of biological specimens must be obtained from relevant institutions.
- VI. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- VII. Submission of an executive summary report within 90 days upon completion of the study to KeMU ISERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) <https://oris.nacosti.go.ke> and also obtain other clearances needed.





# COUNTY GOVERNMENT OF NYERI



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NYERI

## OFFICE OF THE CHIEF OFFICER GOVERNOR'S OFFICE

CGN/GVN/GEN/III/69/2023/15

23<sup>rd</sup> June, 2023

The Director  
Technical and Vocational Education Training  
MERU

### RE: AUTHORITY TO COLLECT DATA FOR MY RESEARCH

I am a PhD student at Kenya Methodist University. I am pursuing my doctorate with a thesis **"THE NEXUS BETWEEN INSTITUTIONAL FACTOR AND DEVELOPMENT OF EMPLOYABILITY SKILLS OF TVET GRADUATES IN MERU COUNTY, KENYA."** I intend to conduct my pilot study in the following institutions.

- 1.) Meru National Polytechnic
- 2.) Karumo Technical Training Institute
- 3.) Nkabune Technical Training Institute
- 4.) Mitunguu Technical Training Institute
- 5.) Kiirua Technical Training Institute
- 6.) Mukiria Technical Training Institute

I request your authorization of the same and I will greatly appreciate your assistance in this endeavor.

Attached kindly find my NACOSTI permit authorizing me to collect data.

A handwritten signature in blue ink, appearing to read 'Lucy N. Kiogora'.

**Lucy N. Kiogora**  
**CHIEF OFFICER - GOVERNOR'S OFFICE**





REPUBLIC OF KENYA

**MINISTRY OF EDUCATION**  
**STATE DEPARTMENT OF VOCATIONAL & TECHNICAL TRAINING**

Email: [cdtvvet.meru2@gmail.com](mailto:cdtvvet.meru2@gmail.com)  
Telephone: 061-2034780

COUNTY DIRECTOR of TVET  
MERU, ISIOLO & MARSABIT  
P.O. BOX 829-60300  
**ISIOLO**

Ref: MOE/CDTVET/MC/9/4/105

**30<sup>th</sup> June, 2023**

**Lucy N. Kiogora**  
Governor's office  
**Nyeri County**

**Re: AUTHORITY TO COLLECT RESEARCH DATA**

Reference is hereby made to your letter Ref: CGN/GVN/GEN/111/69/2023/15 dated 23<sup>rd</sup> June 2023 requesting for Authority to collect data for your PHD research project.

You are hereby authorized to collect data for your pilot study in the following institutions;

- 1.) Meru National Polytechnic
- 2.) Karumo Technical Training Institute
- 3.) Nkabune Technical Training Institute
- 4.) Mitunguu Technical Training Institute
- 5.) Kiirua Technical Training Institute
- 6.) Mukiria Technical Training Institute

The Principals are hereby advised to provide you with the necessary support needed to make your research successful.

Thank you for continued support,  
**COUNTY DIRECTOR TVET**  
*Margaret Nduhiu*  
MERU, ISIOLO & MARSABIT  
P.O. Box 829 - 60300  
ISIOLO

**COUNTY DIRECTOR OF TVET**  
**MERU, ISIOLO & MARSABIT**

Copy to: Meru National Polytechnic, Karumo Technical Training Institute, Nkabune Technical Training Institute, Mitunguu Technical Training Institute, Mukiria Technical and Kiirua Technical Training Institute